

Port Reform Toolkit

SECOND EDITION

MODULES 1–8



THE WORLD BANK



PUBLIC-PRIVATE
INFRASTRUCTURE
ADVISORY FACILITY

© 2007 The International Bank for Reconstruction and Development / The World Bank

All rights reserved.

The findings, interpretations, and conclusions expressed herein are those of the author(s) and do not necessarily reflect the views of Public-Private Infrastructure Advisory Facility (PPIAF) or the Board of Executive Directors of the World Bank or the governments they represent.

Neither PPIAF nor the World Bank guarantees the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of PPIAF or the World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

The material in this work is copyrighted. Copyright is held by the World Bank on behalf of both the World Bank and PPIAF. No part of this work may be reproduced or transmitted in any form or by any means, electronic or mechanical, including copying, recording, or inclusion in any information storage and retrieval system, without the prior written permission of the World Bank. The World Bank encourages dissemination of its work and will normally grant permission promptly.

For all other queries on rights and licenses, including subsidiary rights, please contact the Office of the Publisher, World Bank, 1818 H Street NW, Washington, DC 20433, USA, fax 202-522-2422, e-mail pubrights@worldbank.org.

ISBN-10: 0-8213-6607-6

ISBN-13: 978-0-8213-6607-3

eISBN: 0-8213-6608-4

eISBN-13: 978-0-8213-6608-0

DOI: 10.1596/978-0-8213-6607-3

Acknowledgments

This Second Edition of the Port Reform Toolkit has been produced with the financial assistance of a grant from TRISP, a partnership between the U.K. Department for International Development and the World Bank, for learning and sharing of knowledge in the fields of transport and rural infrastructure services.

Financial assistance was also provided through a grant from The Netherlands Transport and Infrastructure Trust Fund (Netherlands Ministry of Transport, Public Works, and Water Management) for the enhancement of the Toolkit's content, for which consultants of the Rotterdam Maritime Group (RMG) were contracted.

We wish to give special thanks to Christiaan van Krimpen, John Koppies, and Simme Veldman of the Rotterdam Maritime Group, Kees Marges formerly of ITF, and Marios Meletioui of the ILO for their contributions to this work.

The First Edition of the Port Reform Toolkit was prepared and elaborated thanks to the financing and technical contributions of the following organizations.

The Public-Private Infrastructure Advisory Facility (PPIAF)

PPIAF is a multi-donor technical assistance facility aimed at helping developing countries improve the quality of their infrastructure through private sector involvement. For more information on the facility see the Web site: www.ppiaf.org.

The Netherlands Consultant Trust Fund

The French Ministry of Foreign Affairs

The World Bank

International Maritime Associates (USA)

Mainport Holding Rotterdam Consultancy (formerly known as TEMPO), Rotterdam Municipal Port Management (The Netherlands)

The Rotterdam Maritime Group (The Netherlands)

Holland and Knight LLP (USA)

ISTED (France)

Nathan Associates (USA)

United Nations Economic Commission for Latin America and the Caribbean (Chile)

PA Consulting (USA)

The preparation and publishing of the Port Reform Toolkit was performed under the management of Marc Juhel, Ronald Kopicki, Cornelis "Bert" Kruk, and Bradley Julian of the World Bank Transport Division.

Comments are welcome.

Please send them to the World Bank Transport Help Desk.

Fax: 1.202.522.3223. Internet: Transport@worldbank.org

Contents

OVERVIEW

xviii

MODULE 1

FRAMEWORK FOR PORT REFORM

1

1. Introduction and Objectives	1
2. Context for the Framework Module	3
3. The Port Business Environment	5
4. A Road Map for the Port Reform Process	10
4.1. Setting Reform Objectives and Planning for the Creation of Value	10
4.2. Reform Policy Decision Context	11
4.2.1. Methods of Private Sector Involvement	11
4.2.2. Modes of Public Interest Oversight	12
4.2.2.1. Regulatory Oversight: Economic and Technical Issues	12
4.2.2.2. Oversight Administration	13
4.2.3. Port Sector Funding: Financial Implications and Risk Allocation	14
4.2.4. Legal Framework Adaptation	15
4.2.5. Service Packaging and Restructuring	16
4.2.6. Labor Adjustment and Settlement	17
4.2.7. Responsibility for Implementing Port Reform	18
4.2.8. Sequencing of Transactions	19
4.2.9. Transaction Preparation	19
5. Implementing Port Reform: Pulling It All Together	20

MODULE 2

THE EVOLUTION OF PORTS IN A COMPETITIVE WORLD

21

1. Overview of the Competitive Landscape	21
1.2. Rivalry among Existing Competitors	23
1.2.1. Hinterland Market Access	24
1.2.2. Ability to Service Transshipment Trade	24
1.2.3. Regional Port Capacity and Demand	24
1.2.4. Ability to Create Competition within the Port	24
1.2.5. Stakes at Risk	25
1.2.6. Ability to Absorb Losses	25
1.2.7. Ability to Control Operations	25

1.2.8. Limits on Rivalry within Ports	25
1.2.9. Government Willingness to Subsidize Operations	26
1.3. Threat of New Competitors	28
1.3.1. Capital Expenditure for New Port Facilities	28
1.3.2. New Distribution Patterns	28
1.3.3. Provisions in Operating Agreements	28
1.3.4. Natural Barriers	29
1.3.5. Magnitude of Switching Costs	29
1.3.6. Cost Advantages and Customer Loyalties	29
1.4. Potential for Global Substitutes	29
1.4.1. Other Global Sources for Products Moving through the Port	29
1.4.2. Substitute Products for Exports and Imports	30
1.4.3. Magnitude of Switching Costs for Substitution	30
1.4.4. Demand Elasticity of Exports and Imports	30
1.4.5. Importance of Port Costs in Total Delivered Price	30
1.5. Bargaining Power of Port Users	32
1.5.1. Concentration of Port User Power	32
1.5.2. Impact of Changing Business Relationships	32
1.5.3. Presence of Large Value-Adding Tenants	33
1.5.4. Importance of Port to the Economy	33
1.5.5. Ability to Replicate Port Services	33
1.5.6. Facility Investments by Port Users	33
1.6. Bargaining Power of Service Providers	34
1.6.1. Experience and Capabilities of Service Providers	34
1.6.2. Participation in Facility Financing	35
1.6.3. Choke Points in the Port	35
1.6.4. Ability to Absorb Downtime	35
1.6.5. Interrelationships between Providers and Port Users	35
1.6.6. Rights and Obligations Conveyed by Contractual Agreements	35
1.7. The Bottom Line	36
2. Port Dynamics in the 21st Century	36
2.1. Globalization of Production	36
2.1.1. Vertical Specialization	36
2.1.2. Focused Manufacturing	37
2.1.3. Expanded Logistics Reach	37
2.1.4. Increased Sourcing Alternatives	37
2.1.5. Impact of Globalization on Ports	37
2.2. Changing Technology	37
2.2.1. Containerization of World Trade	39
2.2.2. Future Containership Designs	40
2.2.3. Impact on Port Operations	41
2.2.4. Need for Container Port Productivity Improvements	41
2.2.5. Growing Role of Information Technology	42
2.2.6. Port Requirements for Large Cruise Ships	42
2.2.7. Other Technology Affecting Port Services	44
2.3. Shifting Bargaining Power	44
2.3.1. Consolidation among Ocean Carriers	45
2.3.2. Emergence of Global Logistics Service Providers	51

2.4. Changing Distribution Patterns	52
2.4.1. Becoming a Hub	52
2.4.2. Benefits of Hub Status	54
2.4.3. Hub Problems	54
2.4.4. Inland Container Terminals Shifting Activities from the Port	56
2.5. Environmental and Safety Concerns	56
2.5.1. Growing Environmental Concerns	56
2.5.2. Recent Environmental Article	56
2.5.3. Issue of Substandard Ships	56
2.6. Impact of Changing Dynamics on Ports	59
3. Challenges and Opportunities	59
3.1. Transferring Port Operations to the Private Sector	59
3.1.1. The Need for Change	59
3.1.2. Impact of Privatizing Operations	59
3.1.3. Lessons Learned from Past Privatizations	60
3.1.4. Contingency Plan	61
3.2. Opportunities for the Private Sector	61
3.2.1. Terminal Operations	61
3.2.2. Towage Services	61
3.2.3. Maintenance Dredging	63
3.2.4. Information Technology	63
3.2.5. Environmental Facilities and Ship Safety	63
3.2.6. Other Port Services	63
References	67

MODULE 3

ALTERNATIVE PORT MANAGEMENT STRUCTURES AND OWNERSHIP MODELS

69

1. Objectives and Overview	69
2. Evolution of Port Institutional Frameworks	70
3. Port Functions, Services, and Administration Models	73
3.1. Interaction with Port Cities	76
3.2. Role of a Port Authority	77
3.3. Role of Port Operators	78
3.4. Roles of a Transport Ministry	78
3.5. Port Functions	80
3.6. Port Administration Models	81
3.6.1. Service Ports	82
3.6.2. Tool Ports	82
3.6.3. Landlord Ports	83
3.6.4. Fully Privatized Ports	83
3.7. Globalization of Terminal Operations	84
3.8. Port Management and Competition	87
3.9. Port Sector Regulator	89
3.10. Value-Added Services	89
4. Port Finance Overview	92
4.1. Financing Port Projects	93

4.2. Financing Ports: From a Lender's Point of View	97
4.3. Public-Private Partnerships	98
5. Port Reform Modalities	99
5.1. Strategies and Reform Options	100
5.1.1. Modernization of Port Administration	101
5.1.2. Liberalization	101
5.1.3. Commercialization	102
5.1.4. Corporatization of Terminals	104
5.1.5. Corporatization of a Port Authority	106
5.1.6. Privatization	107
6. Reform Tools	109
6.1. Contracting Out and Use of Management Contracts	109
6.2. Concession Arrangements	110
6.2.1. Leasehold Agreements	112
6.2.2. Concession Agreements	114
6.2.2.1. Master Concession	116
6.2.2.2. BOT Arrangements	117
6.3. Comprehensive Privatization	120
6.4. Ports as Transport Chain Facilitators	123
7. Marine Services and Port Reform	124
7.1. Harbormaster's Function	125
7.2. Pilotage	126
7.3. Tugboat Operations	126
7.4. Mooring Services	127
7.5. Vessel Traffic Services and Aids to Navigation	127
7.6. Other Marine Services	128
References	130

MODULE 4

LEGAL TOOLS FOR PORT REFORM

131

1. Introduction and Overview	131
1.1. National Ports Commission	132
2. General Approach for Drafting a Ports Law	132
2.1. Preface	134
2.2. Definitions	134
2.3. Objectives and Functions of a Port Authority	136
2.4. Corporatized Ports—Special Considerations	138
2.5. Implementation Problems	138
3. Port Authority and Terminal Operations	139
3.1. Licensing	140
3.2. Marine Management	140
3.3. Financial Issues	142
3.4. Violations	143
3.5. Appealing Port Authority Regulations	143
3.6. Liability for Damages	143
4. Port Regulations	145
4.1. Port Operating Regulations	145
4.1.1. Vessel Traffic Management	145

4.1.2. Pilotage	146
4.1.3. Order and Safety in the Port	146
4.1.4. Reporting and Communication	146
4.1.5. Dangerous Cargoes: Transport and Handling	146
4.1.6. Pollution and Reception Facilities	149
4.1.7. Regulation of Other Port Functions	149
5. Port Competition Modalities	150
5.1 Legal Structure of Port Competition Regulation	151
6. Full Concession Agreements	154
6.1. Full Concession, Leasehold, and Land Rent	154
6.2. Full Concession and BOT Schemes	154
6.3. Full Concession Agreement Structure	156
6.3.1. Preconcession Documents	157
6.3.2. Definitions	157
6.3.3. Conditions Precedent Sample	161
6.3.3.1. Part 1—Conditions Precedent to be Fulfilled by the Operator	161
6.3.3.2. Part 2—Conditions Precedent to be Fulfilled by the Port Authority	162
6.3.4. Term of the Concession Agreement	163
6.4. Concession Parties	163
6.5. General Rights and Obligations of the Operator	164
6.6. General Rights and Obligations of the Port Authority	165
6.7. Transfer of Rights, Obligations, and Assets	166
6.8. Performance Parameters	168
6.8.1. Productivity Targets	169
6.9. Transfer of Employees	171
6.10. Force Majeure	171
6.11. Lease of Facilities	173
6.12. Site Access	175
6.13. Governing Law	175
6.14. Freedom to Set Tariffs	175
6.15. Taxes	175
6.16. Concession Fee	176
6.17. Insurance and Indemnity	176
6.18. Physical Security	176
6.19. Unclaimed Cargo and Carriers	178
6.20. Information and Communication	178
6.21. Termination and Prolongation	179
6.21.1. Termination Due to Noncompliance	179
6.21.2. Termination Compensation	179
6.21.3. Option to Continue	180
6.21.4. Bankruptcy	181
6.22. Expiration of Concession	182
6.23. Arbitration	182
6.24. Costs	183
6.25. The Tender Process and Transaction Preparation	184
6.26. Miscellaneous Conditions	186
7. BOTs and Construction	186
7.2. BOT and BTO Arrangements	187

7.2. BOOT Arrangements	188
7.3. Functional and Technical Design under a BOT Arrangement	188
7.4. Design and Construction Flaws	190
7.5. Building Conditions	190
7.6. Construction Program	191
7.7. Zero Date	191
7.8. Drop Dead Date	192
7.9. Extension Events	192
7.10. Completion Tests and Take-Over	192
7.11. Hand-Back and Transfer of Facilities	193
7.12. Lender Security	194
7.13. Change in Law	194
Annex I—Checklist of Concession/BOT Agreement Provisions	196

MODULE 5

FINANCIAL IMPLICATIONS OF PORT REFORM 203

1. Introduction	203
1.1. Cost Risk	204
1.2. Revenue Risk	204
Part A—Public-Private Partnerships in Ports: Risk Analysis, Sharing, and Management	206
2. Introduction	206
3. Characteristics of the Port Operator	207
3.1. General Aspects	207
3.1.1. National Environment	207
3.1.2. Industrial and Commercial Dimension	208
3.2. Specific Aspects Particular to the Port Sector	208
3.2.1. Vertical Partnership with the Concessioneing Authority	208
3.2.2. Horizontal Partnership with Numerous Players	209
3.2.3. Long-Term Commitment	210
4. Risk Management	211
4.1. Country Risks	211
4.1.1. Legal Risk	211
4.1.2. Monetary Risk	212
4.1.3. Economic Risk	213
4.1.4. Force Majeure	213
4.1.5. Interference or “Restraint of Prices” Risk	213
4.1.6. Political Risk	214
4.2. Project Risks	215
4.2.1. Construction Risks	215
4.2.2. Hand-Over Risks	216
4.2.3. Operating Risks	216
4.2.4. Procurement Risks	217
4.2.5. Financial Risks	217
4.2.6. Social Risk	218
4.3. Commercial or Traffic Risk	218
4.4. Regulatory Risks	219
4.4.1. Regulatory Tools	219
4.4.1.1. Technical Regulations	220

4.5. Economic and Financial Regulation	221
4.5.1. Scope of Operator Activity	221
4.5.2. Public Service Obligations	221
4.5.3. Noncompetition Guarantees	222
4.5.4. Pricing Controls	222
4.5.5. Fee or Subsidy	223
4.6. Golden Share or Blocking Minority	224
4.7. Risk and Port Typology	224
4.7.1. Operator Handling Only Its Own Traffic	224
4.7.2. Operator Acting on Behalf of a Third Party in a Competitive Situation	224
4.7.3. Operator Acting on Behalf of a Third Party in a Monopoly Situation	225
4.7.4. Transit or Transshipment Traffic	225
4.7.5. Mixed Situations	226
4.8. Other Concessioning Authority Guarantees	226
4.9. Contractual Risks	227
4.9.1. Contract Management	227
4.9.2. Indexation Risk	228
4.9.3. Credit Risk—Bonds	228
4.10. Approach of the Different Partners to Risk and Risk Management	228
4.10.1. Concessioning Authority	229
4.10.2. Project Sponsors	229
4.10.3. Lenders	230
5. Concluding Thoughts	230
Part B—Principles of Financial Modeling, Engineering, and Analysis:	
Understanding Port Finance and Risk Management from Public and Private Sector Perspectives	231
6. Introduction	231
7. Measuring Economic Profitability from the Perspective of the Concessioning Authority	231
7.1. Differential Cost-Benefit Analysis	231
7.2. Commonly Used Economic Profitability Indicators	232
7.3. Assessing the Economic Costs of the Project	233
8. Rating Risk from the Perspective of the Concession Holder	233
8.1. Financial Profitability and “Bankability” of the Project	233
8.2. Assessing the Project Risks by Producing a Rating	234
8.2.1. Commonly Used Financial Profitability Indicators	234
8.2.1.1. Payback Time	234
8.2.1.2. Project IRR	236
8.2.1.3. Project NPV	236
8.2.1.4. Investment Cover Ratio	236
8.3. Project Discount Rate—Cost of Capital	236
8.4. Financial Debt Remuneration Requirement	237
8.4.1. Inflation	238
8.4.2. Risk Rating by Determining r_d	238
8.4.3. Debt Remuneration Requirement Conclusion	238
8.5. Equity Remuneration Requirement	238
8.5.1. Sharing of Public-Private Financial Commitments:	
Arbitration between Financial and Socioeconomic Profitability	240

9. Financial Project Engineering	240
9.1. Financial Structuring within the Framework of a Project Finance Set-Up	240
9.2. Debt Structuring	242
9.3. Long-Term Commercial Debt	242
9.3.1. Foreign Currency Loans	243
9.3.2. Guaranteed Commercial Debt	243
9.3.3. Export Credits	243
9.3.4. Financial Credits with a Multilateral Umbrella (A- and B-loans)	244
9.3.5. Bonded Debt	247
9.3.6. Structuring Equity and Quasi-Equity	247
9.3.6.1. Equity Provided by the Public Sector	247
9.3.6.2. Equity Invested by the Project's Sponsors	248
9.3.6.3. Equity Invested by Multilateral Institutions	248
9.3.6.4. Equity Invested by Bilateral Institutions	249
9.3.6.5. Specialist Investment Funds	249
9.4. Managing Exogenous Financial Risk	249
9.4.1. Interest Rate Risk Management	250
9.4.1.1. Interest Rate Swaps	251
9.4.1.2. Firm Financial Instruments in the Over-the-Counter Market	252
9.4.1.3. Firm Financial Instruments in the Organized Markets	252
9.4.1.4. Conditional Financial Instruments (interest rate options)	252
9.4.2. Foreign Exchange Risk Management	252
9.4.3. Counterpart Risk Management and Performance Bonds	254
9.5. Financial Engineering and Political Risk Management	254
9.5.1. Guarantees Offered by Multilateral Agencies	255
9.5.2. Guarantees Offered by Export Credit Agencies	257
9.6. The Use of Private Insurers for Covering Political Risks	257
10. Financial Modeling of the Project	257
10.1. Construction of the Economic Model	257
10.1.1. Capital Expenditure Types	257
10.1.2. Operating Revenues and Expenses	258
10.1.2.1. Operating Revenue and Charges in Terminal Management Operations	259
10.1.2.2. Operating Finance Requirement	259
10.1.2.3. Operating Account Balance	259
10.1.3. Tax Flows	260
10.2. Construction of the Financial Model	260
10.2.1. Cash Flow Statement	260
10.2.2. Profit and Loss Account (income statement)	260
10.2.3. Balance Sheet	261
References	261
Appendix: Risk Checklist—Principal Risks in a Port Project	263

MODULE 6

PORT REGULATION: OVERSEEING THE ECONOMIC PUBLIC INTEREST IN PORTS

267

1. Introduction	267
2. Regulatory Concerns When Formulating a Port Reform Strategy	268
2.1. How Ports Compete	270
2.2. Assessing Port Sector Competition	271

2.2.1. Transport Options	272
2.2.2. Operational Performance	272
2.2.3. Tariff Comparisons	273
2.2.4. Financial Performance	274
2.3. Costs of an Inadequate Regulatory Framework	274
3. Strategies to Enhance Port Sector Competition	277
3.1. Structural Strategies	277
3.2. Structural Remedies	279
3.3. Regulatory Strategies	280
3.4. Decision Framework for Selecting Port Competition: Enhancement Strategies and Remedies	282
4. Designing a Port Regulatory System	283
4.1. Step 1: Specify Regulatory Objectives and Tasks	285
4.2. Step 2: Conduct a Legal Review of the Regulatory System	286
4.3. Step 3: Determine Institutional Arrangements for Regulatory Oversight	286
4.4. Step 4: Determine Degree of Regulatory Discretion	293
4.5. Step 5: Identify Appropriate Regulatory Tools and Mechanisms	294
4.6. Step 6: Specify Operating and Financial Performance Indicators	296
4.7. Step 7: Establish an Appeal Process and Procedures	299
4.8. Step 8: Incorporate Regulatory Details into Laws and Contracts	299
5. Summary and Conclusions	302
Annex A. Port Tariffs: General Structure, Items, and Flow of Charges	304
Endnotes	308
References	310

MODULE 7

LABOR REFORM AND RELATED SOCIAL ISSUES 313

1. Context for Labor Reform	313
2. Key Labor Issues	317
3. Labor Involvement in Port Reform	318
4. Organizing to Address Labor Reform: A Task Force Approach	321
5. The Institutional Framework for Labor Reform	323
5.1. Redefining the Concept of Social Equity	323
5.2. Meeting Commercial Needs	324
5.3. Fostering Competition	325
5.4. Government's Role	325
5.5. Time Frame for Port Labor Reform	326
6. Developing the Workforce Rationalization Plan	326
6.1. Alternatives to Dismissals	327
6.2. Elements of a Staff Retrenchment Program	328
6.3. Pitfalls in Designing and Implementing Severance Packages	329
6.4. Rationalizing the Workforce: When and By Whom?	331
6.4.1. Prereform Rationalization	331
6.4.2. Postreform Rationalization	332
6.5. Who Should Pay for the Expenses of Port Labor Rationalization?	333
7. International Support for Labor Adjustment	334
8. Postreform Labor Management Relations	336

References	336
Annex I. World Bank Labor Adjustment Projects	337
Annex II. List of Organizations That Have Obtained and Renewed an International Labour Organization Portworker Development Program License	351

MODULE 8

IMPLEMENTING PORT REFORM

1. Strategic Preparation: The Interministerial Working Group	353
1.1. IWG Mandate and Composition	354
1.2. Hiring Advisers	354
1.3. Time Frame	355
1.4. IWG Workplan	356
2. Redefinition of Authorities and Powers	356
2.1. Regulatory Principles	356
2.2. Port Authorities and Consultations	356
2.3. Public Infrastructure Pricing	356
2.4. Labor Redeployment	359
2.5. Contract Management Principles and Procedures	359
3. Legal Adaptation	359
4. Transaction Preparation	359
4.1. Financial Model	360
4.2. Due Diligence	360
4.3. Contractual Document Preparation	360
4.4. Bidding Documents' Preparation	360
References	363

BOXES

Module 1

Box 1: Port of Cartagena (Colombia) Performance Improvements since Private Concessioning in 1994	2
Box 2: Argentina: Selected Performance Indicators for the Port of Buenos Aires	3
Box 3: Port Projects with Private Participation in Developing Countries	5
Box 4: Investments in Port Projects with Private Participation in Developing Countries by Project Type, 1992–2004	6
Box 5: Public-Private Roles in Port Management	9
Box 6: Port Reform Decision Tree	11
Box 7: The Public-Private Balance of Risk and Regulation	15
Box 8: Shifting the Boundary of a Public-Private Partnership	20

Module 2

Box 1: The Competitive Landscape	22
Box 2: Checklist of Key Questions for Positioning in the Global Port Market	23
Box 3: Load Centers Competing for the Gulf Market	26
Box 4: Intraport Competition in the European Union	27
Box 5: Reebok Logistics Center in the Maasvlakte Distripark	31
Box 6: Enlarging Venezuelan Export Markets of Coal and Crude Oil	32
Box 7: Suppliers to Container Terminal	34

Box 8: Evolution of Containerized Shipping	38
Box 9: Development of Container Vessel Sizes as a Percentage of the Global Fleet	39
Box 10: Ships on Order as of September 2005	40
Box 11: Evolution of Cellular Fleet	40
Box 12: Future Containerships Require Increasingly Larger Cranes	41
Box 13: Impact on Port Productivity of Unit Voyage Cost of Large Containerships	43
Box 14: Ceres Paragon Terminal in Amsterdam, the Netherlands	44
Box 15: Port User Information Network	45
Box 16: Felixstowe Cargo Processing System (FCPS)	46
Box 17: Physical Requirements to Accept Cruise Ships	47
Box 18: Podded Electric Drive Impact on Requirements for Ship Assist in Port	47
Box 19: Top 10 Container Carriers as of June 2006	48
Box 20: Worldwide Container Traffic	49
Box 21: Global Terminal Operators 2005 Throughput League Table	49
Box 22: Key Milestones of Hutchison Port Holdings in the 1990s	50
Box 23: Hub and Spoke Container Distribution	53
Box 24: Hub Options on the Asia–Europe Route	55
Box 25: Duisburg Inland Container Terminals	57
Box 26: How a Major Transshipment Terminal and Pretty Bay Beach Coexist	58
Box 27: The Green Award Initiative	59
Box 28: Estimated Available Market in the Port Sector	61
Box 29: The Port of Hong Kong—Why is it so Successful?	62
Box 30: Ballast Water Treatment Plant in the Port of Portland	63
Box 31: Middle East Navigation Aids Service	64
Box 32: Checklist for Negotiating a Terminal Privatization	65
Module 3	
Box 1: “White Elephants” in Port Development	71
Box 2: Institutional Formats of Greenfield Ports	73
Box 3: Examples of Port Economic Multiplier Effects	74
Box 4: Value-Added Development Efforts in the Port of Rotterdam	75
Box 5: Strengths and Weaknesses of Port Management Models	84
Box 6: Basic Port Management Models	85
Box 7: Top 10 Carriers as of June 2006	86
Box 8: Global Terminal Operators 2005 Throughput League Table	87
Box 9: Portfolio of the Largest Terminal Operators as of June 2005	88
Box 10: Elements Influencing Interport Competition	90
Box 11: Overview of Value-Added Services in Ports	91
Box 12: Potential for VAL and VAF	92
Box 13: European Rules on Port Subsidies	94
Box 14: Categories of Port Assets	95
Box 15: Multiple Terminal Ownership in Sri Lanka	96
Box 16: Reasons for Pursuing Port Reform	99
Box 17: Creation of Commercialized Port Authorities in China	104
Box 18: The Port of Aqaba: Corporatization and Privatization	108
Box 19: The Experience of the Hanseatic Landlord Ports	110
Box 20: Spectrum of Port Reform Tools	111
Box 21: Comparison of Lease Systems	113
Box 22: BOT Schemes and Port Development	118

Box 23: San Martin-Rosario Waterway Concession	119
Box 24: Impetus behind Full Privatization in the United Kingdom	122
Box 25: Singapore Creates PSA Corporation	124
Box 26: The Creation of a National Pilotage Monopoly in the Netherlands	127
Box 27: Prevailing Service Providers under Different Port Management Models	129

Module 4

Box 1: Singapore: Transforming a Service Port into Landlord Port	133
Box 2: Panama: Enabling Legislation for a Concession	134
Box 3: Eastern Europe: Decentralizing Port Management	134
Box 4: Latin America: Allowing Private Stevedoring Operations	136
Box 5: Object of Port of Rotterdam, Ltd.	136
Box 6: Caution: Single National Ports Authority can be Hazardous to Economic Health	137
Box 7: Functions of Corporatized Port Authorities	137
Box 8: Division of Shares in Corporatized Port Authority	138
Box 9: Violated Neutrality: A Port Director with Two Hats	140
Box 10: Maritime Domain: A Potential Impediment to Port Development	141
Box 11: Marine Management Tasks to be Separated from Corporatized or Privatized Port Tasks	142
Box 12: Harbormaster's Powers and Functions	142
Box 13: Reference Clauses on General Regulations of the Authority	144
Box 14: Reference Clauses on Specific Regulations of the Authority	144
Box 15: Reference Clauses on Damages	144
Box 16: Reference Clauses on Liability	145
Box 17: Reference Clauses on Port Safety and Environmental Protection	147
Box 18: Reference Clauses on Reporting	148
Box 19: Reference Clauses on Loading and Discharging Dangerous Cargoes	149
Box 20: Reference Clauses on Waste Management	150
Box 21: The Buenos Aires Case	152
Box 22: Sample Port Competition Act	153
Box 23: Full Concession, Lease, and Rent Contracts—Landlord Port	155
Box 24: Main Schedules to a Concession or BOT Agreement	157
Box 25: Reference Clause on Term of Concession	163
Box 26: Reference Clause on Nomination of Operator of a Container Terminal	164
Box 27: Reference Clauses on General Rights and Obligations of the Operator	165
Box 28: Reference Clauses on General Rights and Obligations of the Port Authority	166
Box 29: Reference Clauses on Permitted Activities	167
Box 30: Reference Clauses on Newly Built Assets in the Concession Area (BOT arrangement)	167
Box 31: Reference Clauses on Transfer of Assets	169
Box 32: Reference Clause on Productivity Targets	171
Box 33: Reference Clauses on Selection and Transfer of Personnel	172
Box 34: Reference Clauses on Force Majeure	172
Box 35: Reference Clauses on Lease of Facilities	173
Box 36: Reference Clauses on Site Conditions	173
Box 37: Reference Clauses on Access to the Site	175
Box 38: Reference Clause on Governing Law	175
Box 39: Reference Clause on Price Discrimination	176
Box 40: Reference Clause on Taxes	176
Box 41: Reference Clauses on Concession Fee	177
Box 42: Reference Clauses on Insurance and Indemnity	177

Box 43: Reference Clauses for Security	178
Box 44: Reference Clauses on Unclaimed Cargoes	178
Box 45: Reference Clauses on Information and Communication	179
Box 46: Reference Clause on Termination by the Port Authority	180
Box 47: Reference Clause on Termination by the Operator	180
Box 48: Reference Clauses on Termination Due to Noncompliance	181
Box 49: Reference Clauses on Prolongation	181
Box 50: Reference Clauses on Bankruptcy	181
Box 51: Reference Clauses on Expiration of Concession	183
Box 52: Reference Clause on Arbitration	184
Box 53: Reference Clause on Costs	185
Box 54: Clauses on Miscellaneous Conditions	186
Box 55: Reference Clauses on Construction and Maintenance (Landlord Port Situation)	187
Box 56: Reference Clauses on Scope of a Concession Agreement (including a BOT arrangement)	189
Box 57: Reference Clauses on Construction Program	190
Box 58: Reference Clauses on Infrastructure Design	191
Box 59: Reference Clauses on Technical Design and Construction Problems	191
Box 60: Reference Clauses on Site Conditions	192
Box 61: Reference Clauses on Construction	192
Box 62: Reference Clauses on Zero Date	193
Box 63: Reference Clauses on Drop Dead Date	193
Box 64: Reference Clauses on Extension Events	193
Box 65: Reference Clause on Take-Over Tests	193
Box 66: Reference Clauses on Hand-Back of Facilities	194
Box 67: A Case of Legal Limitations Adversely Affecting a Port Concession	195
Box 68: The Case of St. Maarten	196
Box 69: Reference Clause on Lender's Security	197
Box 70: Reference Clauses on Law Changes	198

Module 5

Box 1: Richard's Bay Coal Terminal: A Wholly Private Terminal	219
Box 2: Port Réunion: A Single Container Terminal Using Several Handling Contractors	223
Box 3: Owendo Ore Terminal in Gabon	225
Box 4: Container Terminals in the North European Range	225
Box 5: Container Terminal Operator in the Port of Klaipeda	226
Box 6: Port of Djibouti: Transit and Transshipment	226
Box 7: Djibouti Fishing Port: Public Service and Semi-Industrial Activity	227
Box 8: Horizontal and Vertical Partnerships in the Port of Maputo, Mozambique	227
Box 9: The Country Ranking Developed by Nord-Sud Export	235
Box 10: An Example of Export Cover by COFACE in a Port Project	245
Box 11: Principal Guarantees Offered by an Export Credit Agency for Project Financing: The COFACE Example	246

Module 6

Box 1: Intraport Competition in Buenos Aires, Argentina	271
Box 2: Port Sector Competition Factors	272
Box 3: The Case of Israel: From National Monopoly to Port Monopoly	275
Box 4: Potential Anticompetitive Behavior in the Port Sector	276
Box 5: Predatory Pricing and Service Bundling in Cartagena, Colombia	276

Box 6: Competition Enhancement	277
Box 7: Dividing the Port into Terminals to Induce Competition	279
Box 8: Terminalization in Limited-Volume Ports: The “Overlapping Competition” Strategy	280
Box 9: Subsidy Bids for Management Contracts in Low-Volume Ports	281
Box 10: Checklist for Port Sector Restructuring or Unbundling	281
Box 11: Decision Framework for Port Competition Enhancement	282
Box 12: Reviewing Port Regulatory Responsibilities in Victoria, Australia	287
Box 13: Establishing a Port Sector Regulatory Agency in Colombia	288
Box 14: A Simple Port Regulatory Structure for Sri Lanka	290
Box 15: Safeguards for Creating an Independent Regulatory Body	292
Box 16: Reconciling Independence with Accountability	293
Box 17: Price Cap versus Rate-of-Return Regulation	295
Box 18: Port Production Process	297
Box 19: Port Performance Indicators	300
Box 20: International Arbitration	301
Box 21: Checklist of Regulatory Items for Port Operating Contracts	302
Box A-1: Relative Weights of Different Port Charges	304
Box A-2: Relationship between Port Charges and the Location Where the Charge is Incurred	305
Box A-3: Transaction Complexities Pre- and Postprivatization	305
Box A-4: Port Charges in Miami, Florida	306
Box A-5: Port Charges in Cartagena, Colombia	307
Module 7	
Box 1: Changes in Economic Policies: Impact on Port Labor	314
Box 2: Trends in Gang Strength, 1970s and 1980s	316
Box 3: Labor Competition in India and Brazil	317
Box 4: Factors Prompting Port Labor Reform	317
Box 5: Port Labor Reform in the European Union	318
Box 6: Possible Effects of Reform on Employment	319
Box 7: Working with Labor Unions: The Ghana Case	322
Box 8: Sample Reference Clauses in a Concession Agreement on Employee Transfer	323
Box 9: The Productivity Commission of Australia	324
Box 10: Institutional Framework for Labor Reform Key Findings	325
Box 11: Job Security in Ports	326
Box 12: Social Plans at Moulinex	328
Box 13: Port Staffing Benchmarks	330
Box 14: A Downsizing Decision Tree	332
Module 8	
Box 1: Hiring and Managing Advisers	355
Box 2: Port Reform Process	361
Box 2a: Port Reform Process	362

Overview

OBJECTIVES

The process of institutional reform is complex. Moreover, most countries undertake the kinds of fundamental institutional reforms that shift boundaries between the public and private sectors less than once in each generation. Hence, the knowledge necessary to carry the reform process forward needs to be built up in most countries from a near-zero base. The Port Reform Toolkit is designed to flatten the learning curve for institutional renewal by providing background information, concrete examples, specific tools, and methods which policymakers and reformers require to proceed with the confidence that genuine knowledge affords.

The complex reform process through which the Toolkit navigates policymakers is a worthwhile journey. Although the reasons for engaging in port reform are many and varied, the benefits can be quantified as they accrue to operators, shippers, consignees and businesses. A successful reform program may free governments of unnecessary expenditures, releasing funds for more socially needed government programs, unplugging bottlenecks to trade and economic development and motivating the adoption of new regulations that protect the environment and improve workers' and navigational safety.

Although the main audience for the Toolkit is public officials in developing countries who are responsible for port sector reform, the Toolkit will also be of interest to other government officials and to executives of port service companies, shipping companies, and port consultants, as well as companies dependent on port services.

The Port Reform Toolkit is aimed to provide policymakers and practitioners with effective decision support in undertaking sustainable and well-considered reforms of public institutions that provide, direct, and regulate port services in developing countries. In particular the purpose of the Toolkit is to provide public officials with support in:

- Understanding the needs, challenges, and risks for sector reform and institutional redesign that are emerging from the changing business environment surrounding port operations
- Choosing among options for private sector participation and analyzing their implications for redefining interdependent operational, regulatory, and legal relationships between public and private parties
- Preparing legislation, contracts, and institutional charters to govern private sector participation
- Managing the transition to increased private sector involvement

The Toolkit draws together practical institutional designs and transferable modalities for increasing private sector involvement without compromising the public interest. It presents “best international practices” in a manner that is relevant to decision makers. The Toolkit is designed to be easily understood by non-specialists. Thus it attempts to make general points with concrete examples. It is illustrated with experience drawn from recent port reform activities around the world.

ARCHITECTURE OF THE TOOLKIT

The Toolkit is made up of eight modules plus a financial model. The framework module sets the stage for all of the modules that follow. It provides a unifying “decision framework” that policymakers can use to guide them—step by step—through the processes of reforming and re-inventing port institutions. It also provides a common language and a set of concepts used throughout the Toolkit that represent the common language port reformers use in communicating with their various constituencies. Importantly, the framework module also includes a road map for the modules that follow. It explains the interrelationships of these modules with one another and their relevance to the framework presented in this keystone module.

The framework module therefore lays out an ordered set of decisions that are linked together logically as well as in their time order for consideration. For each decision, the Toolkit attempts to articulate the principal options and alternatives that are available to policy makers and to assess the expected consequences associated with each option based on recent international experience. The framework is presented in the form of a decision tree, which thus provides a background for understanding the sequence of all the Toolkit modules, which are displayed as follows:

Module 1: Framework for Port Reform

Readers of this module should be able to grasp the overall approach of port reform through an overview of all the various issues to be dealt with throughout the reform process, as detailed in the subsequent seven modules.

Module 2: The Evolution of Ports in a Competitive World

Readers of this module should be able to understand the roles and functions of ports and be able to place their ports in the context of current and historic port developments. They should also be able to understand the major trends shaping port dynamics in the 21st century.

Module 3: Alternate Port Management Structures and Ownership Models

Readers of this module should be able to reach a decision about the most effective, efficient, and feasible structure of their ports based on the identification of their ports’ strengths and weaknesses and given each country’s/region’s unique economic, political, and social environment.

Module 4: Legal Tools for Port Reform

Readers of this module should be able to understand and take steps to develop specific port reform measures based on the port’s/government’s economic, financial, political, and social goals and within institutional and legal frameworks. The module includes updated reference clauses and checklists for preparing concession agreements and other legal instruments.

Module 5: Financial Implications of Port Reform

Readers of this module should gain an appreciation for port finance and its relationship to reform as well as how the financial risks and rewards vary from one reform option to another. Some of the financial implications that need to be taken into account include risk allocation among port stakeholders, potential sources of funding for the reform process, and pricing port services to achieve revenue and public policy objectives. A comprehensive financial model is also included as an annex to Module 5.

Module 6: Port Regulation

Readers of this module should gain a solid understanding of oversight mechanisms and methods, the role of regulatory bodies, inspections, audits, the reporting requirements, and the interplay between competition and regulation.

Module 7: Labor Reform and Related Social Issues

Readers of this module should be able to plan for and implement rationalization of port labor in a manner that treats affected parties fairly while achieving essential efficiency and economic improvements.

Module 8: Implementing Port Reform

Readers of this module should receive practical advice on how to take the many elements of port reform and put them into a procedurally logical and politically feasible sequence of steps that maximize the chances for success.

A wider range of reform models and of public/private partnership formats exists for the delivery of port services than for any other infrastructure-intensive service sector. This is because the ensemble of services provided by ports is wider and requires more diverse and specialized skills and involves more categories of service-indivisible assets than other public/private institutions. Although the Toolkit does not elaborate on all models available to sector reformers, it does define the options on either end of the public/ private spectrum as well as the most common risk-sharing arrangements, such as concessions and terminal operating leases. Importantly, it also provides tools for assessing hybrid options and for understanding their merits and risks.

In dealing with reform in the port sector, the World Bank has tried to pool knowledge from around the world. This knowledge is abundant. Over the past 15 years, more than 200 port projects involving private participation in developing countries and investments totaling over US\$ 21 billion have been completed. The problem confronting public policy makers when they take up the challenge of port reform is not a lack of information, but rather a lack of useful knowledge that they can use to support their own process of reform.

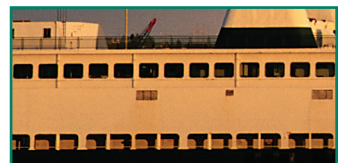
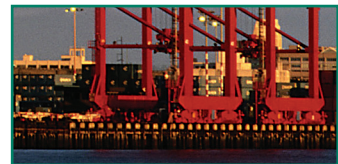
The Toolkit makes use of a diversity of communication media to convey knowledge and insight to its users, including narrative text, mini case studies, graphics, models, and stylized representations of decision processes. The objective of the World Bank in developing and disseminating this information is to provide not only a comprehensive but also an easy-to-use Toolkit for port reform.



PORT REFORM TOOLKIT SECOND EDITION

M O D U L E 1

FRAMEWORK FOR PORT REFORM



THE WORLD BANK

© 2007 The International Bank for Reconstruction and Development / The World Bank

All rights reserved.

The findings, interpretations, and conclusions expressed herein are those of the author(s) and do not necessarily reflect the views of Public-Private Infrastructure Advisory Facility (PPIAF) or the Board of Executive Directors of the World Bank or the governments they represent.

Neither PPIAF nor the World Bank guarantees the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of PPIAF or the World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

The material in this work is copyrighted. Copyright is held by the World Bank on behalf of both the World Bank and PPIAF. No part of this work may be reproduced or transmitted in any form or by any means, electronic or mechanical, including copying, recording, or inclusion in any information storage and retrieval system, without the prior written permission of the World Bank. The World Bank encourages dissemination of its work and will normally grant permission promptly.

For all other queries on rights and licenses, including subsidiary rights, please contact the Office of the Publisher, World Bank, 1818 H Street NW, Washington, DC 20433, USA, fax 202-522-2422, e-mail pubrights@worldbank.org.

ISBN-10: 0-8213-6607-6

ISBN-13: 978-0-8213-6607-3

eISBN: 0-8213-6608-4

eISBN-13: 978-0-8213-6608-0

DOI: 10.1596/978-0-8213-6607-3

MODULE ONE CONTENTS

1. Introduction and Objectives	1
2. Context for the Framework Module	3
3. The Port Business Environment	5
4. A Road Map for the Port Reform Process	10
4.1. Setting Reform Objectives and Planning for the Creation of Value	10
4.2. Reform Policy Decision Context	11
4.2.1. Methods of Private Sector Involvement	11
4.2.2. Modes of Public Interest Oversight	12
4.2.2.1 Regulatory Oversight: Economic and Technical Issues	12
4.2.2.2. Oversight Administration	13
4.2.3. Port Sector Funding: Financial Implications and Risk Allocation	14
4.2.4. Legal Framework Adaptation	15
4.2.5. Service Packaging and Restructuring	16
4.2.6. Labor Adjustment and Settlement	17
4.2.7. Responsibility for Implementing Port Reform	18
4.2.8. Sequencing of Transactions	19
4.2.9. Transaction Preparation	19
5. Implementing Port Reform: Pulling It All Together	20

BOXES

Box 1: Port of Cartagena (Colombia) Performance Improvements since Private Concessioning in 1994	2
Box 2: Argentina: Selected Performance Indicators for the Port of Buenos Aires	3
Box 3: Port Projects with Private Participation in Developing Countries	5
Box 4: Investments in Port Projects with Private Participation in Developing Countries by Project Type, 1992–2004	6
Box 5: Public-Private Roles in Port Management	9
Box 6: Port Reform Decision Tree	11
Box 7: The Public-Private Balance of Risk and Regulation	15
Box 8: Shifting the Boundary of a Public-Private Partnership	20

Acknowledgments

This Second Edition of the Port Reform Toolkit has been produced with the financial assistance of a grant from TRISP, a partnership between the U.K. Department for International Development and the World Bank, for learning and sharing of knowledge in the fields of transport and rural infrastructure services.

Financial assistance was also provided through a grant from The Netherlands Transport and Infrastructure Trust Fund (Netherlands Ministry of Transport, Public Works, and Water Management) for the enhancement of the Toolkit's content, for which consultants of the Rotterdam Maritime Group (RMG) were contracted.

We wish to give special thanks to Christiaan van Krimpen, John Koppies, and Simme Veldman of the Rotterdam Maritime Group, Kees Marges formerly of ITF, and Marios Meletioui of the ILO for their contributions to this work.

The First Edition of the Port Reform Toolkit was prepared and elaborated thanks to the financing and technical contributions of the following organizations.

The Public-Private Infrastructure Advisory Facility (PPIAF)

PPIAF is a multi-donor technical assistance facility aimed at helping developing countries improve the quality of their infrastructure through private sector involvement. For more information on the facility see the Web site: www.ppiaf.org.

The Netherlands Consultant Trust Fund

The French Ministry of Foreign Affairs

The World Bank

International Maritime Associates (USA)

Mainport Holding Rotterdam Consultancy (formerly known as TEMPO), Rotterdam Municipal Port Management (The Netherlands)

The Rotterdam Maritime Group (The Netherlands)

Holland and Knight LLP (USA)

ISTED (France)

Nathan Associates (USA)

United Nations Economic Commission for Latin America and the Caribbean (Chile)

PA Consulting (USA)

The preparation and publishing of the Port Reform Toolkit was performed under the management of Marc Juhel, Ronald Kopicki, Cornelis "Bert" Kruk, and Bradley Julian of the World Bank Transport Division.

Comments are welcome.

Please send them to the World Bank Transport Help Desk.

Fax: 1.202.522.3223. Internet: Transport@worldbank.org

1

MODULE

Framework for Port Reform

SECOND EDITION

1. INTRODUCTION AND OBJECTIVES

The process of institutional reform is complex. Most countries undertake the kinds of fundamental institutional reforms that shift boundaries between the public and private sectors less than once in each generation. Hence, in most countries the knowledge necessary to carry the reform process forward needs to be built up from a near zero base. The Port Reform Toolkit (Toolkit) is designed to shorten the learning curve for institutional review and renewal by providing background information, concrete examples of successful and unsuccessful reforms, and specific tools and methods that policy makers and reformers require to proceed with the confidence that genuine knowledge affords.

The complex reform process through which the Toolkit navigates policy makers is a worthwhile journey. While the reasons for engaging in port reform are many and varied (as discussed in Module 3), the benefits are real and can be quantified as they accrue to exporters, consumers, shippers, and entrepreneurs. A successful reform program will help free governments of unnecessary expenditures, releasing funds for high priority social programs; ease bottlenecks to trade and economic development; and motivate the adoption of new regulations that protect the environment and improve worker and navigational safety.

Generally, the benefits the main stakeholders can expect from port reform include:

- *Governments:* At the macroeconomic level, improvement of external trade competitiveness by reducing transport costs, particularly the cost of port services, and improving port efficiency at the sea/land interface; at the microeconomic level, easing the financial burden on national budgets by transferring part of port investments and operating costs to the private sector, and incidentally, raising revenues from asset divestitures.

- *Transport and terminal operators:* More cost-effective port operations and services, allowing for more efficient use of transport assets and better competitive positions in transport markets, and more business opportunities in growing sectors (for example, container operations).
- *Shippers, exporters, and importers:* Reduced port costs and, potentially, lower maritime freight rates, allowing lower costs of imported goods and intermediate products and enhanced competitiveness for exports.
- *Consumers:* Lower prices for consumer goods and better access to a wider range of products through improved access and increased competition between suppliers.

Two illustrative examples of port reform benefits are Colombia and Argentina. In Colombia, the liberalization of port labor practices along with the transfer of most port services to the private sector resulted in large and rapid improvements in productivity, lower fees for port users, and very attractive returns for the concessionaires (see Box 1). Similarly, in Argentina, the improvements following the concessioning of terminal operations in Buenos Aires have been dramatic:

port charges and shipping tariffs declined sharply, labor productivity nearly quadrupled, and cargo volumes have jumped by more than 50 percent (see Box 2).

The objective of the Toolkit is to provide support for policy makers in undertaking sustainable and well-considered reforms to public institutions that provide, direct, and regulate port services in developing countries. In particular, the Toolkit offers public officials with support in:

- Understanding the need for and challenges associated with sector reform and institutional redesign in light of the changing business environment affecting port operations.
- Choosing among options for private sector participation and analyzing their implications for redefining interdependent operational, regulatory, and legal relationships between public and private parties.
- Preparing legislation, contracts, and institutional charters to govern private sector participation.
- Managing the transition to increased private sector involvement.

Box 1: Port of Cartagena (Colombia) Performance Improvements since Private Concessioning in 1994

PERFORMANCE MEASURE	COLPUERTOS (1993)	SPRC (2003)
Containership waiting time	10 days	< 2 hours
Containership turnaround time	72 hours	7 hours
Gross productivity/hour	7 moves/ship hour	52 moves/ship hour
Berth occupancy	90 percent	50 percent
Cost per move	\$984	\$224
Bulk cargo productivity	500 tons/vessel/day	3,900–4,500 tons/vessel/day
Hours worked per day	16	24
Cargo dwell time	30+days	2 days
Port costs	\$984/per move	\$222/per move

Source: Kent, Paul E., and Anatoly Hochstein. 1998. "Port Reform and Privatization in Conditions of Limited Competition: The Experience in Colombia, Costa Rica, and Nicaragua." *Maritime Policy and Management* 25(4): 313, and Sociedad Portuaria Regional de Cartagena.

Note: COLPUERTOS is the former national public port entity and SPRC is Sociedad Portuaria Regional de Cargagena, a regional port entity resulting from the reform process.

Box 2: Argentina: Selected Performance Indicators for the Port of Buenos Aires

Indicator	Before 1993	1996
Cargo (thousands of tons)	4,000	6,000
Containers (thousands of TEUs)	300	540
Capacity (thousands of containers per year)	400	1,000
Operational area (hectares)	65	95
Productivity (tons per worker per year)	800	3,000
Average stay for full containers (days)	2.5	1.5
Cost for container imports (\$ per ton)	450	120
Port tariff for exports (\$ per ton)	6.7	3.0
Port tariff for imports (\$ per ton)	2.1	1.5

Source: Puertos (Colombia General Port Superintendent; July 1997).

Resources that address port institutional reform in a comprehensive and systematic way or that clearly explain the processes involved in re-engineering public port institutions are not readily available. The Toolkit is designed to fill this knowledge gap and to provide port reformers with decision support tools, tested and proven institutional reform tactics, and guidelines that represent “best international practice.”

The Toolkit draws together practical institutional designs and alternative approaches for increasing private sector involvement without compromising the public interest. It presents best international practices in a manner that is relevant to decision makers, and is designed to be easily understood by nonspecialists. It supplements general points with specific examples drawn from recent port reform activities around the world.

While the main audience for the Toolkit is public officials in developing countries who are responsible for port sector reform, the Toolkit should also be of interest to other government officials, to executives of port service companies and shipping companies, as well as port consultants and companies that use port services.

In addition to this introduction, this framework module includes the following sections:

- Context for the Framework Module
- The Port Business Environment

- A Road Map for the Port Reform Process
- Implementing Port Reform: Pulling It All Together

2. CONTEXT FOR THE FRAMEWORK MODULE

The Toolkit is made up of eight modules. The first of these, this framework module, sets the stage for all of the other modules that follow. It provides a unifying “decision framework” that policy makers can use to guide them step-by-step through the processes of reforming and re-inventing port institutions. It also provides a common language and a set of concepts that are used throughout the Toolkit and that represent the common language port reformers use in communicating with their various constituencies. Importantly, the Framework Module also includes a road map for the other modules that follow. It explains the interrelationship of these modules with one another, and their relevance to the framework presented here.

This module lays out an ordered set of decisions that are linked together functionally as well as temporally. For each decision, the Toolkit attempts to articulate the principal options and alternatives available to policy makers and assesses the expected consequences associated with each option based on recent international experience. The framework is presented in the form of a “decision tree” that provides a

context for understanding the subsequent modules, which are summarized briefly below.

- *Module 2: The Evolution of Ports in a Competitive World.* This module outlines the roles and functions of ports and the forces shaping port dynamics in the 21st century. Readers of this module will place their ports in the context of current and historic port developments and understand the major trends shaping the ports of the future.
- *Module 3: Alternative Port Management Structures and Ownership Models.* This module describes different port structures and ownership models and identifies their strengths and weaknesses. Upon completion, readers will be able to determine the most effective, efficient, and feasible structure for their ports, while taking into account each country's or community's unique economic, political, and social environment.
- *Module 4: Legal Tools for Port Reform:* This module focuses on the legal and contractual options for port reform and examines their strengths and weaknesses. Readers of this module will come to understand and develop specific port reform measures and legal frameworks based on the port's and government's economic, financial, political, and social goals and objectives.
- *Module 5: Financial Implications of Port Reform.* Risk allocation among port stakeholders, potential sources of funding for the reform process, and pricing port services to achieve revenue and public policy objectives are highlighted in this module. Readers of this module will appreciate port finance and its relationship to reform as well as how the financial risks and rewards vary from one reform option to another.
- *Module 6: Overseeing the Economic Public Interest in Ports.* This module defines the public interest and describes

the oversight mechanisms and techniques and elements of the public interest. It provides a solid understanding of oversight mechanisms and methods; the role of regulatory bodies, inspections and audits; reporting requirements; and the interplay between competition and regulation.

- *Module 7: Labor Reform and Related Social Issues.* This module focuses on the institutional, legal, and industrial frameworks for port reform; establishing a productive dialogue among port stakeholders; rationalizing the workforce; and overcoming roadblocks. Readers will learn to plan for and implement rationalization of port labor in a manner that treats affected parties fairly while achieving essential efficiency and economic improvements.
- *Module 8: Implementing Port Reform.* How do you get from concept to effective implementation of port reform? This module offers practical advice on how to take the many elements of port reform and put them into a procedurally logical and politically feasible sequence of steps that maximizes the chances for success.

A wider range of reform models and public-private partnership formats exists for the delivery of port services than for any other infrastructure-intensive service sector. This is because the ensemble of services provided by seaports is vast and requires more diverse and specialized skills and involves more categories of service than other public-private institutions. Although the Toolkit does not elaborate on all models available to sector reformers, it does define the options on either end of the public-private spectrum as well as the most common risk-sharing arrangements, such as concessions and terminal operating leases. Importantly, it also provides tools for assessing hybrid options and for understanding their merits and risks.

In dealing with reform in the port sector, the World Bank has tried to pool knowledge from around the world. This knowledge is abundant:

over the past 13 years, more than 200 transactions have been completed that involve increased private sector participation in the port sector (see Boxes 3 and 4). The problem confronting public policy makers when they take up the challenge of port reform is not a lack of information, but rather a lack of useful knowledge to help them navigate through their own process of reform.

The Toolkit uses a diversity of communication media to convey knowledge and insight to its users, including narrative text, mini case studies, graphics, and stylized representations of

decision processes. The World Bank's objective is to provide a comprehensive, easy-to-use tool for port reform.

3. THE PORT BUSINESS ENVIRONMENT

Three broad forces, detailed below, are generating momentum for port reform in developing and industrialized countries alike:

- External forces of competition and technology from the shipping industry.
- The acknowledged financial and operational benefits of private participation in infrastructure development and service delivery.
- The diversification and globalization of investors and operators in the port industry.

First is the need to restructure port operations to deal with the external factors that affect port viability, including national competition for global markets, changes in port and transport technology, and increased competition among ports. Port institutional models developed in the 19th and early 20th century significantly constrain ports from competing effectively on a service quality basis, limit their agility and market responsiveness in mobilizing resources, and constrain their ability to share risks with private sector partners. In planning how responsibility for future port development and operations will be divided between the private and public sectors, and in deciding on desired levels of investment to be funded or guaranteed from public sources, policy makers must increasingly regard the competitiveness of their port(s) in relation to other ports in their region, and compared to the supply chain alternatives available to their users. In general, these alternatives are more abundant today than they were 15 plus years ago. Consequently, the port business is more competitive today than it was when most port authorities were originally chartered. New institutional models are needed for this new era of increased competition.

The second force generating momentum for reform is private participation in infrastructure

Box 3: Port Projects with Private Participation in Developing Countries

Port Projects with Private Participation in Developing Countries that Reached Financial Closure, 1992–2004

1992	9
1993	15
1994	19
1995	25
1996	19
1997	23
1998	26
1999	20
2000	22
2001	10
2002	7
2003	13
2004	12
Total	220

Port Projects with Private Participation in Developing Countries by Type of Project, 1992–2004

Concession	106
Divestiture	14
Greenfield project	82
Management and lease contract	18
Total	220

Source: PPI Database, World Bank

Box 4: Investments in Port Projects with Private Participation in Developing Countries by Project Type, 1992–2004

(US\$ Million)

Year	Concession	Divestiture	Greenfield Project	Management and lease contract	Total
1992	160	–	88	–	248
1993	346	–	149	3	498
1994	850	–	149	–	999
1995	653	–	1,364	4	2,021
1996	411	30	1,257	–	1,698
1997	2,165	80	1,649	–	3,894
1998	827	6	433	8	1,275
1999	1,777	29	667	–	2,473
2000	398	400	1,611	1	2,409
2001	825	–	442	3	1,271
2002	334	38	976	7	1,355
2003	781	–	1,131	–	1,911
2004	117	–	1,231	3	1,351
Total	\$9,644	\$583	\$11,147	\$28	\$21,402

Source: PPI Database World Bank

Database Definitions

Divestitures. A private entity buys an equity stake in a state-owned enterprise through an asset sale, public offering, or mass privatization program.

Greenfield Projects. A private entity or a public-private joint venture builds and operates a new facility for the period specified in the project contract. The facility may return to the public sector at the end of the concession period.

Management and Lease Contracts. A private entity takes over the management of a state-owned enterprise for a fixed period while ownership and investment decisions remain with the state.

Concessions. A private entity takes over the management of a state-owned enterprise for a given period during which it also assumes significant investment risk.

and superstructure. In recent years, world governments and lending agencies have come to acknowledge that private sector participation can be a powerful force for enhancing the performance of port assets, as with other infrastructure assets. National and regional seaports are realizing that they cannot compete effectively without the efficiencies offered by private operators and, equally importantly, without access to capital provided by private investors. In response, there has been a steady increase in recent years of private participation in port operations around the world. Countries with

recent experience of port reform include Argentina, Brazil, Canada, Chile, China, Colombia, Egypt, Estonia, Germany, India, Indonesia, Japan, the Republic of Korea, Latvia, Lithuania, Malaysia, Mexico, Mozambique, Nigeria, Oman, Panama, the Philippines, Poland, Russia, Tanzania, Thailand, and the United Kingdom. Moreover, the pace of private investment in the sector is accelerating. As Box 4 demonstrates, private investment in the sector has increased progressively since 1990. Over this period, private sector investment in ports increased from \$243 million in 1992 to \$3.9

billion in 1997, and to a cumulative amount of more than \$21 billion by the end of 2003.

The private sector, which has driven recent port development, has rapidly matured and has organized itself into distinct specialized subsectors. Today, the port services industry is a \$50–55 billion global business that is expected to grow to \$75–80 billion in 2009 and includes several distinct specialized segments.

The third force affecting reform is the development of a global market for port development services, with specialized niches each containing a number of international companies that offer specialized service capabilities. The market today broadly includes four groups of operators:

- 1) The first wave of “global stevedores,” the first to have expanded their operations internationally from a strong home base.
- 2) The second wave, comprising regional operators now entering the international market following the success of their predecessors.
- 3) Shipping lines, investing in terminals.
- 4) Niche investors, looking more specifically at small- to medium-scale facilities.

The top five global operators accounted for more than 28 percent of the total container handling market in 2005. The second wave includes 10 or so stevedoring groups mainly from the United States, Europe, and Asia, and is now challenging the first global stevedores on new development opportunities. The major shipping lines are reorganizing their terminal operations as separate corporate entities to also enter the market. The niche investors, a dozen identified so far, can be expected to continue to carve out specific market segments in the future.

But in this market, as well as in the shipping industry, consolidation has changed the competitive landscape, at least between the different groups above, and within the groups themselves. The consequences of consolidation

for regional competitive conditions could be significant, and will require due attention from public authorities. The structure of this global industry should, therefore, be considered by policy makers when adopting specific reform models. Module 2 provides a detailed overview of prevailing trends in the global port and maritime industry.

The range of services ports offer differs widely. So, too, do the service reputation and established commercial relationships with carriers that global service operators can bring when they are selected as investors or operators. In general, modern ports offer two kinds of services: core and value-added services. The core services provided by most ports include, but are not limited to:

- Marine services:
 - ~ Access and protection.
 - ~ Pilotage.
 - ~ Towage.
 - ~ Vessel traffic management.
 - ~ Fire protection service.
 - ~ Chandlery.
- Terminal services:
 - ~ Vessel tie-up services.
 - ~ Container handling and transfers.
 - ~ Traditional breakbulk and neobulk cargo handling.
 - ~ Dry and liquid bulk cargo handling.
 - ~ Container stuffing and stripping.
 - ~ Bagging and packaging.
 - ~ Cargo storage, acceptance and delivery.
- Repair services:
 - ~ Dredging and maintaining channels and basins.
 - ~ Equipment repair and maintenance.
 - ~ (Dry dock) ship repairs.

- ~ Container and chassis repairs.
- Estate management services.
- Information management services.

A number of these services can be outsourced to specialized private sector service providers via a number of different methods. In general, the appropriateness of specific methods is determined by two main factors:

- *The nature of the service itself (for example, public responsibility or commercial activity):* Public responsibility, for instance in vessel traffic management, means that regardless of the arrangement adopted to deliver the service, the ultimate operational and legal responsibility for the service remains with the public sector, usually the port authority. This is critical when considering how to optimize service delivery while keeping up with the public characteristics of the service. Commercial activities in ports also entail some level of public responsibility, but to various degrees. The minimum is usually the duty for the port authority to ascertain the qualifications of service providers operating on the public domain through a licensing process. Equally significant is the requirement for a port authority to ensure the availability of basic port services, including commercial services, to all users on a nondiscriminatory basis.
- *The nature of the assets required to deliver each category of service:* The assets required to deliver many marine services, for example, are mobile and can be moved at relatively low cost from one port to another. Most of the assets required to provide access and protection or to deliver terminal services, however, are immobile, and have long economic lives. Moreover, the use of these long-lived assets is indivisible among discrete service units. In other words, a large portion of their costs are fixed regardless of the volume of service units over which it is amortized.

For the purposes of defining asset “rights” of ownership, lease, rental, casual use, and so forth, it is helpful to differentiate port assets into three categories: 1) long-lived, high cost infrastructure (for example, breakwaters, channels, and turning basins) in which incremental benefit can only arbitrarily be assigned to individual port users; 2) long-lived, high cost infrastructure (for example, quays and terminals) for which incremental use and benefit can be apportioned in various ways and assigned to discrete service delivery systems; and 3) superstructure and equipment whose use is clearly associated with specific users and specific service delivery systems.

Much of the preparation for port institutional reform therefore involves:

- Identifying the critical basic public functions and public responsibilities that will define the role of the national and local public authorities in charge of the port sector.
- Identifying the assets needed to support each function and category of service, assessing the adequacy of these assets, and determining which services and related assets to package together and which among these to tender to private investors or operators.

Box 5 presents the most common options for transferring specific categories of rights to reposition specific categories of core port services from the public to the private sector. The different port models indicated in the table are defined and discussed in Module 3.

In addition to providing core port services, increasingly ports are delivering nontraditional services to their customers as well. These nontraditional services typically expand the role of port service providers in the supply chains of shippers. These services create value for shippers by expanding the scope of markets they can economically access by reducing the delivered cost of products they sell, or by reducing the cost to complete buy/sell transactions. These services allow ports to participate in specialized port service niches and to differentiate themselves from

Box 5: Public-Private Roles in Port Management

Port Activity	Port Administration	Nautical Management	Nautical Infrastructure	Port Infrastructure	Superstructure (equipment)	Superstructure (buildings)	Cargo Handling Activities	Pilotage	Towage	Mooring Services	Dredging	Other Functions
Public service port												
Tool port												
Landlord port												
Private service port												

☐ Public Responsibility
 ☒ Private Responsibility

competing ports by means other than price and turnaround times.

Improving logistics is now a widely accepted means for companies to improve their competitiveness. Logistics, in short, is a procedure to coordinate all aspects of the manufacturing and distribution process to ensure the delivery of the right products to the right markets at the right time. The key elements to develop an advanced logistics strategy usually include:

- Understanding the cost and operating behavior of the entire supply chain and using this understanding to inform decisions about where to locate manufacturing, assembly, and distribution centers.
- Promoting strong relationships with carriers and vendors that include quality certification procedures.
- Designing a flexible transportation system that allows for quick routing and mode selection changes.
- Integrating the logistics information system with the manufacturing and purchasing processes.

There are a significant number of activities that can be classified as value-added services in the field of logistics. Generally, they fall into two categories:

- General logistics services, including storage, loading and unloading, stripping and

stuffing, groupage, consolidation, and distribution.

- Value-added logistics (VAL), including activities such as repackaging; customizing; assembly; quality control; testing; repair; on-terminal auto-accessorizing; grain storage and fumigating; news print storage and transfer; and in-container garment assembly.
- General value-added services, commonly known as VAS, may include such services as equipment maintenance, equipment renting and leasing, cleaning facilities, tanking, safety, security services, offices, and information and communication services of various kinds.

VAL activities, in particular, are growing in importance as producers concentrate on meeting the demands of customers for high quality specialized products. New players in this field—third-party logistic services providers—have emerged to take over parts of the production chain (assembly, quality control, customizing, packaging, and so forth) and of the after-sales (repair, reuse) service.

Ports are in a natural position to participate in this logistics revolution, bringing together all modes of transport, information systems, and land for the construction of facilities. Undoubtedly, containerized and general cargo have the highest VAL potential.

4. A ROAD MAP FOR THE PORT REFORM PROCESS

Embarking on port reform requires a strong vision combined with proper planning and organization. The following sections will highlight the main components for putting together a road map for the port reform process, which are elaborated further throughout the toolkit, and include setting of objectives to policy decisions; methods of involving the private sector; public interests oversight; financing and risk allocation; legal framework; labor reform; and implementation.

4.1. Setting Reform Objectives and Planning for the Creation of Value

Port reform should only be undertaken after a full and complete assessment of the objectives that public officials are trying to achieve. Institutional reform or, indeed, private sector involvement, should not be an end in itself, but only a means to achieve specific and well-defined public interest objectives. The objectives underlying port reform may be as varied as the need to expand or to modernize container handling capacity, the desire to stimulate the growth of a distribution-based economy centered on a regional hub port, or the need to reduce government expenditures on the sector so that limited public funds can be applied to other more pressing social needs. In any case, the private provision of port services and infrastructure is only one tool among others that are available to officials to solve specific problems and to achieve specific public interest objectives. Thus, the decision process should begin with the consideration of the objectives that port reform is designed to achieve. Module 3 reviews those possible objectives in greater detail.

The delivery of port services has become an increasingly risky undertaking. Increased competition between or among ports, large capital outlays, more specialized investments, and the expansion of port activities beyond traditional services all increase the possibility of economic losses from port operations. Considerations of risk and return on social capital should figure

prominently in deliberations of public policy makers concerning public interest objectives underlying port reform.

All of the reform design issues touched on above need to be assessed in the context of the operating scale of a particular port and the interest and willingness of private companies to invest in the particular set of services offered to them. For example, intraport competition for services such as stevedoring or terminal operations may be feasible in a large volume port, but not feasible in a small volume port.

Modules 3 and 6 describe circumstances under which competition for licenses, rights, or franchises may be an effective way to sustain competition and maintain incentives for continuous service enhancement. The modules also identify circumstances under which competition in the market may not be feasible. Furthermore, Module 3 in particular discusses advantages of designing competition between or among private operators into the tendering process for the delivery of specific categories of service.

Where competition “in the market” for specific categories of port services is not workable, competition “for the market” may still be an option for protecting the public interest. While continuing and robust competition among multiple service providers is the best way to ensure low prices for services rendered, such competition may not be feasible in all port environments due to physical constraints or small cargo flows. In such an environment, it is still essential to maximize the economic benefits of competition and to minimize the risks associated with monopoly service through competitive bidding. For the provision of still other categories of service (for example, those that have significant consequences for the efficient use of assets for both shipping lines and for terminal operators), retention of these services in the public domain may be the best option. Module 3 addresses this issue of packaging core and noncore services into bundles for private participation.

Port reformers should carefully choose the objectives they seek to achieve before settling on

any specific reform model because different objectives will require different types of reforms. Options for private sector involvement, investment, and risk sharing range from open entry to service contracts, management contracts, leases, joint ventures, control of corporate entities and concessions all the way to full divestiture. Differing forms of private sector involvement result in different allocations of risk, different responsibilities for government, and different types of government oversight. Module 5 delves into the issue of risk sharing at greater length.

4.2. Reform Policy Decision Context

The port reform decision process must begin with the clear definition of the objectives that the reforms are intended to achieve. The next step is to delineate all of the key institutional design and reform decisions needed to move the process to a successful result. Next, for each decision point along an ordered reform path, options and alternatives should be developed and assessed. In particular, all of the possible outcomes resulting from the selection of any specific option need to be fully evaluated with respect to the stated objectives of reform.

A useful tool for laying out the port reform process and feasible options is a decision tree. Key branches comprising this port reform decision tree include:

- Methods of private sector involvement.
- Modes of public interest oversight.

- Port sector funding: Financial implications and risk allocation.
- Legal framework adaptation.
- Service packaging and asset restructuring.
- Labor adjustment and settlement.
- Implementation responsibility.
- Sequencing transactions.
- Transaction preparation.

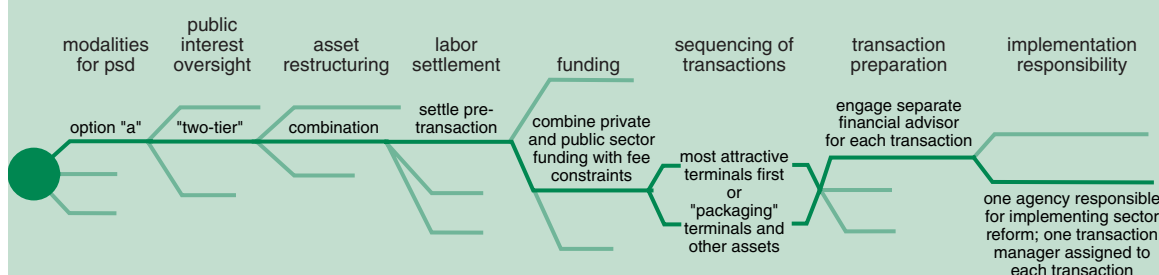
For each of these key decision points, several options exist. Box 6 shows a notional decision tree leading port reformers through the many steps involved in the process.

4.2.1. Methods of Private Sector Involvement

The nature of private sector involvement in the port sector will be prescribed by the adoption of a specific institutional model. To assist port reformers in determining which model might best apply to their circumstances, Module 3 describes four port management models that cover the spectrum of private sector involvement in ports, including: the public service port, the tool port, the landlord port, and the private service port.

Within these models, a broad array of options exists with respect to the specific form the public-private partnerships may take. These can significantly affect the agility and responsiveness of service providers, their market orientation and efficiency, and their decision-making autonomy.

Box 6: Port Reform Decision Tree



Source: Author.

The appropriateness of specific models for particular ports needs to be judged, ultimately, by how well they help achieve the objectives of the reform program. However, a number of other factors should also be considered, including:

- The strategic fit with the identified needs of the existing and potential market.
- The competitive consequences for other ports in the same range.
- The compatibility with other approaches to public-private partnerships used in other transport infrastructure projects as well as other sectors of the economy.
- The fit with the investment capacity and interests of potential strategic investors.

4.2.2. Modes of Public Interest Oversight

The two key issues involving public interest oversight are what powers and authorities need to be retained by a public oversight body after reform, and how that body needs to be constituted and at what level of government it needs to operate.

As noted above, increased private sector participation in the delivery of port services should be viewed as an instrument to achieve well-defined public interest objectives. Thus, a key element in port reform must be the creation of a mechanism to protect the public interest and make certain that the objectives of reform are met. In creating such a mechanism, it is important to keep public statutory and regulatory oversight responsibilities separate from commercial activities.

Government oversight typically takes several forms, such as strategic planning, technical regulation, and economic regulation. Planning the future development of ports and sharing those plans with private developers who can help implement them is a continuing responsibility of governments. As discussed above, every port's vision of its future needs to be realistically set in the context of its commercial environment and its competitive position versus other ports. It must also take into account the likely effects of

proposed increases in capacity on regional markets, since one country's efforts to increase its share of regional trade typically evoke competitive responses.

Thus, regardless of which port reform model is selected, strategic transport planning will remain a critical responsibility of governments. Enhancing international competitiveness requires, among other things, implementing and maintaining a cost-effective transport system, with the port interface being a critical link to international markets. A national ministerial body, therefore, should be in charge of developing the long-term strategic vision for national waterfront development plans. The port reform vision should also encompass other land transport reforms to ensure the complementary development of interconnected links in the transport infrastructure. Many examples exist around the world of the inefficiencies and bottlenecks created when road and rail links are not developed at a pace adequate to handle increased port activity. Further, this planning effort will have to take into account various stakeholders' interests in the long-term development of coastal areas within the framework of a national Integrated Coastal Zone Management (ICZM) policy.

4.2.2.1 Regulatory Oversight: Economic and Technical Issues. Safety is a major concern with ship movements in and around port mooring and berthing areas and with cargo handling operations ashore. Requirements for handling and storage of hazardous cargoes must be clearly spelled out in port regulations and should be based on international conventions with due allowance for specific local conditions. Technical regulation of operations is required to ensure compliance with security, safety, labor, and environmental protection standards, as well as to set and monitor appropriate minimum performance requirements (especially if competition is weak). Forms of technical regulation and the necessity for them do not change significantly with port reform. Consequently, technical regulation is not dealt with in detail in the Toolkit (more information on the safety and

handling of hazardous cargoes can be found at the International Maritime Organization's Web site www.imo.org).

A complex set of mutual obligations typically bind private operators and users to act in concert and in compliance with the rules in the provision and use of port services. The development and enforcement of operating rules and regulations represents another oversight responsibility that most public authorities assume or retain as part of their essential functions.

Module 4 elaborates on the kinds of mutual obligations among private service providers and between them and public service integrators that are needed to ensure the safe and efficient delivery of services. These technical regulations are typically articulated in a set of port rules and regulations. Module 4 will discuss the content of a model set of rules and corresponding enforcement mechanisms that have been used effectively in various port reform efforts.

Finally, this module also describes the legal sources such as decrees, laws, contracts, licensing agreements, and sectoral policies used to define and enforce obligations on private operators and port users.

Economic regulation, which usually aims at monitoring market entry and pricing, is necessary when competition is weak or nonexistent. Conversely, when significant competition develops, either internally or externally, the need for strong economic regulation decreases. Indeed, when competitive pressure is well established, there may be little reason to maintain any price regulation other than a requirement to publish tariffs, a continuing prohibition against undue discrimination against similarly situated port users, and retention of a mechanism by which the government can monitor the competitiveness of the market and investigate alleged anticompetitive activity. The level of competition faced by an individual port, therefore, has important implications for the nature and degree of regulatory oversight of port operators. Ports with abundant intra- and interterminal competition require minimal economic regulation.

In general, the difference in public sector responsibilities before and after institutional reform is the difference between “rowing” the boat and “steering” the boat, respectively. Postreform oversight powers are typically indirect and designed to induce socially beneficial actions on the part of the private sector. Oversight may involve the creation of incentives for private sector investment, the tendering of investment opportunities, compatibility of all private investments with a master plan, and coinvestment under certain circumstances. Module 6 discusses various aspects of economic public interest oversight in depth.

4.2.2.2. Oversight Administration. Once the areas for continuing government oversight have been defined, it is necessary to determine an institutional framework for administering the oversight. Port administration may be centralized or decentralized; each approach has its strengths and weaknesses. Centralized administration permits a broader national economic and multimodal perspective for directing port development policy. Decentralized administration permits a more narrow local perspective that aligns port development with the economic interests and priorities of municipal or regional economies.

In addition to discrete national and local approaches to port oversight responsibility, a two-tiered option also exists. For example, a national port council can be formed, to which local port authorities report. Under the best of circumstances, this two-tiered arrangement allows for the balancing of national and local interests and the reconciliation of both through deliberative processes. In the worst of circumstances, the two-tiered bureaucracy may lead to excessive interference in port operations and management or contradictory policies that interfere with planning and investment decisions.

The degree of decentralization in policy making and regulation should:

- Reflect the objectives of the port reform program.

- Consider the institutional capacity and authority of the relevant levels of government.
- Provide a balance between national economic goals (such as seamless transport flows and export promotion) and local concerns (such as labor activity, environmental degradation, and industrial development).

In addition, whether port regulatory responsibilities should be concentrated at the central level or decentralized to the local level should be looked at with two concerns in mind: the consistency of the approach with those generally followed throughout the country, and the need for a transparent and efficient user-friendly regulatory system. The former would call for some sort of nationwide unit, likely at the ministerial level, although at arm's length from the ministry of transport to guarantee independence; the latter could lead governments to consider local (state/province) regulatory units closer to the field and, therefore, better able to tailor decisions to meet local conditions.

To provide for a clear separation of policy and regulatory responsibilities at both the national and local levels, a three-tier institutional framework has also been employed effectively. For example, under the assumption that reforms will result in a landlord port arrangement with commercial activities fully carried out by private operators, the new public oversight framework could be devised along the following lines:

- A central body comprising senior representatives from relevant ministries, municipalities of port cities, and port authorities would work out national port policy and strategic planning objectives, and would establish the main sector regulations to be enforced by the port authorities.
- The port authorities, autonomous public institutions or public joint-stock companies, would be granted the right to use state-owned land; administer, maintain, and develop port infrastructure assets;

manage and enforce navigation safety measures; enforce environmental protection regulations; monitor the concessions and leases governing private sector activities in the port area; and market the port to attract new investors.

- The private operating companies would carry out commercial activities related to cargo traffic management and handling and market their services to attract new port users.

In such a setting, the national body serves three key roles: it establishes the basic rules of participation to be applied by all entities, public and private; it regulates the public port authorities, in particular with respect to their infrastructure pricing policies; and it provides an appeal level for dispute resolution in case private commercial operators believe they are unfairly treated by their local port authority and regulator.

4.2.3. Port Sector Funding: Financial Implications and Risk Allocation

The two key issues concerning financial risk are:

- Which categories of port assets should private investors be at risk for providing, maintaining, and repairing versus those for which the public sector will be responsible?
- On what basis should user fees or subsidies be used to cover the cost of long-lived port assets?

Module 5 describes the many types of risks involved in port projects and assesses the risks associated with the reform models developed in Module 3. Module 5 also identifies the financial tools that decision makers can use to systematically assess the financial risks and potential rewards associated with specific investment programs. (A financial simulation model to assess the viability of specific investment operations is also included as an Appendix to Module 5). Port reformers should carefully consider what risks the public sector can afford to bear and on what basis specific risks should be transferred

to the private sector. Port planners have available to them a number of risk mediation tactics, which are also described in Module 5.

Port operations require several categories of long-lived assets, some of which are inherently more amenable to private investment and user fee recapture than others. For some long-lived, high cost infrastructure assets, such as breakwaters, channels, and turning basins, charges for incremental use can only be assigned arbitrarily to individual users because the marginal benefit derived from using this common infrastructure significantly outweighs the marginal cost of replacing it. Consequently, a charge schedule developed by a private developer and based on user benefits could result in monopoly profits and less use than economically desirable. Port assets also include long-lived, high cost infrastructure, such as quays and terminals, whose incremental use can be meaningfully assigned to users and whose marginal cost and marginal benefit can be balanced through a number of price regulation regimes or intraport competition. Finally, port assets include long-lived superstructure and equipment whose use is closely associated with specific users and specific service delivery systems. Equipment is a mobile asset and can be competitively provided or easily redeployed. On-dock storage and transshipment facilities can be awarded through competition and assigned to their most productive use through open tender.

All three categories of assets can be provided or maintained by the private sector. However, from the perspective of private investors, the first category involves the greatest risk, has the longest payback, and involves the highest risk tradeoff between their ability to set prices independently without regulatory constraint and the level of investment they are prepared to make. In general, private investors are prepared to make larger investments when they are unconstrained by regulators or when the price schedules (including escalation mechanisms) they propose in advance of awards are accepted and locked in for a long term. In other situations, the funding of long-lived, high cost infrastructure remains in the

public sector and is charged back to users through a number of different regimes. Modules 3 and 6, respectively, deal with the operational and institutional aspects and the regulatory aspects of charging for port infrastructure.

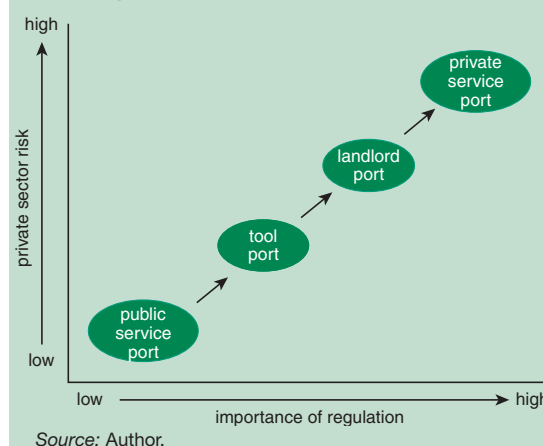
Most port charges involve some combination of public components for the support of publicly financed common use infrastructure and private components for the provision of terminal infrastructure. The combination of these two pricing factors determines the competitiveness of ports compared to other competing ports. In general, the greater the degree of competition, the less the need for regulatory intervention. Module 6 discusses the limited set of circumstances under which regulatory intervention into pricing decisions made by private service providers may be appropriate.

Box 7 illustrates how the four port management and operation models array themselves on scales measuring private sector risk and the need for independent government oversight.

4.2.4. Legal Framework Adaptation

To initiate wide-ranging reform, the legal framework that underpins the institutional arrangements of the sector may require significant amendment. To ensure credibility, openness,

Box 7: The Public-Private Balance of Risk and Regulation



and transparency in the reform process, and to attract international participation and long-term financial commitments from potential investors, a sound and precise legal framework for defining public-private partnerships is essential. In particular, prior to any reforms involving build-operate-transfer (BOT) arrangements, governments should enact a concession law spelling out the principles of the process and establishing the rules and responsibilities for each party. Further, governments should consider putting in place a complementary set of regulations describing how the concession law will be applied in practice.

Since there are ways other than concessions for securing private participation in port activities, the national legal framework for public-private partnerships must also incorporate these elements, or at least establish which entity will be responsible for monitoring them. The basis of any licensing process, for example, must be made clear in the law, which can then specify that port authority regulations will articulate more precisely the implementation criteria.

The following legal documentation should be reviewed to assess the need for modification or the need for complementary statutes:

- *Sector laws:* Legislation establishing the national institutional framework governing ports and clearly describing the mandate of all public entities involved.
- *Concession laws or contracts:* Since a widely used option for private sector participation in port activities is concessions, the basic legal framework enabling public authorities to enter into such contractual arrangements must be in place, including a clear and transparent process for awarding contracts and standard contractual language providing for appropriate monitoring arrangements.
- *Port regulations:* The set of provisions governing the daily operations in the port; some may apply universally within the country (for example, environmental protection and labor rules), and some

may apply only to specific localities (for example, ship movements, access, traffic safety, and tariff structure).

Since amending a law most often requires going through a legislative process, the earlier in the reform process this can be initiated the better. Sector laws and laws governing contract award and management between public and private entities are the most critical elements to be enacted. Port regulations can usually be put in place by a ministerial decree. Module 4 offers guidance and examples in the drafting of sector laws reflecting the sector model to be implemented as well as guidance on the contents of concession contracts and port regulations.

4.2.5. Service Packaging and Restructuring

Once the main institutional options for sector reform are decided upon, the issue of asset restructuring must then be addressed. The two key issues involving asset restructuring are what degree of competition should be designed into port service markets and what assets (and related services) should be tendered as packages for single source awards.

Port assets can be divided among sets of services and tendered as separate packages in a number of different ways. The consequences of either bundling assets (and corresponding services) or unbundling them has a direct effect both on competition among private service providers and on the efficiency with which a port can operate.

In larger ports, competition among terminal operators is both desirable and practical. In smaller ports, competition is less feasible because the economies of scale required to attract specialized service providers are not sufficient to assure them of a reasonable profit while maintaining charges at reasonable levels. Moreover, effective coordination of cargo handling and marine services can be better assured in smaller ports by integrating them in a single source service. Module 6 reviews the consequences of such options from an economic regulatory perspective.

4.2.6. Labor Adjustment and Settlement

The process of port labor reform often requires governments to eliminate provisions from existing labor regimes that unduly constrain flexibility and productivity. Overstaffing, in particular, has been a pervasive feature of most port organizations in both the developing and developed world. Achieving more cost-efficient operations will generally require significant reductions in the workforce. Therefore reducing the workforce in a socially acceptable way must be a prominent concern of public authorities and an integral part of the reform process.

Addressing the overstaffing issue as one of the first steps in the reform process, before involving the private sector in operations, will usually facilitate the overall reform process. Since overstaffing in ports is often the result of government policies that view port organizations as instruments of social policy and natural shelters for the unemployed, governments should take the lead responsibility in resolving this issue. Often this means creating programs to ease the transition of port labor into other sectors. Doing this, in turn, requires the application of significant financial and management resources early in the reform process.

If port services and infrastructure are tendered to the private sector before the labor issue is resolved, for the process to stand a fair chance to succeed, care should be taken that the private operators are allowed to adjust their workforce over time to actual operational requirements and that existing social protection programs will ensure the labor adjustment process will be smooth and not provoke undue labor unrest. This may sometimes require the establishment of special government-funded programs to accompany staff retrenchment, possibly by complementing general social programs with sector-specific assistance made available over a defined and limited period of time.

In all cases, this means that organizational and budgetary resources must be mobilized early in the reform process to ensure appropriate and socially acceptable treatment of potential labor

dislocations. In particular, worldwide experience strongly suggests that port labor should be involved in the port reform process from its earliest conceptual phase. Again, experience indicates that the best way to build confidence in the reform process by all affected parties is to broaden the sphere of participation and responsibility to include port users, port labor, and port and maritime employers. Such broad participation will allow all stakeholders to share common concerns about competitiveness of port services and gain a better understanding of how any weakening of this competitiveness would be detrimental to all. This is particularly true for the workforce, which would be the first to bear the consequences of reduced economic activity, both inside and outside the port. Significantly, the International Transport Workers Federations (ITF), while cautious about the social consequences of port reforms, appreciates the need to improve port efficiency, possibly through increased private sector participation. It insists, however, on the critical need to involve labor unions from the start so that mutually acceptable labor rationalization strategies can be designed to make the whole process both economically and socially sustainable.

Institutions for allocating available work among members of a qualified labor pool based on seniority or some other rank-ordering principle have grown up within most traditional ports. Unions typically control entry into these pools of qualified labor, the result being to close the port labor market to competition and to new entrants. Opening labor markets to competition is one of the objectives sometimes sought by port reformers. In this context, one of the key issues to be addressed is the role of these dock labor boards or union labor pools and how they affect management discretion over the recruitment, qualification, and use of specific employees.

Three key questions arise when considering workforce reductions in the port reform process: Who will be responsible for “buying out” surplus labor, when in the process will labor separation negotiations be completed, and

on what basis will postreform labor-management relationships be conducted?

Theoretically, labor contract issues can be resolved either before or after port services and infrastructure have been transferred from the public to the private sector. Either the public sector or the new private sector operator can manage negotiations and can absorb the liability associated with separating surplus employees. Typically, however, resolving labor separation issues before transactions are completed relieves investors of uncertainty and enhances the perceived value of the investment. In general, it is a good idea to make a clean break in labor contract coverage and the basis for employee selection and work assignments at the same time that the rights to control port assets are conveyed. This may involve not only buying out individual laborers under the terms of existing contracts, but also buying out the contract itself, thereby giving private operators a clean slate to negotiate new agreements. Module 7 reviews in depth the issues relating to labor adjustment policies in port reform and proposes ways to handle them in a manner that meets the joint objectives of institutional reform and social sustainability.

For additional information on labor reform, consult the World Bank's Toolkit *Labor Issues in Infrastructure Reform* and the International Labor Organization's report, *Social Dialogue in the Process of Structural Adjustment and Private Sector Participation in Ports: A Practical Guidance Manual*.

4.2.7. Responsibility for Implementing Port Reform

The key issues of port reform implementation responsibility concern what government agency is responsible for port sector reform and what skills and competencies are required to implement a port sector reform program successfully. The delegation of responsibility for managing port sector reform typically comes in the form of a special decree, law, or other explicit delegation of authority. To what organization of government should this authority be delegated? It is

rarely possible for a port authority to reform itself, since the inherent conflicts are too great for even a well-meaning port authority to adopt and implement significant change. Moreover, the work of implementing port reform is diverse and requires special skills. Some of it, for example, involves developing regulatory frameworks, some of it involves labor negotiations, and some of it involves preparing individual transactions.

In deciding which agency of government should manage port reform, many questions arise. Should reform be carried out by a temporary agency of government whose sole purpose is port reform, or should it be delegated to a standing government agency? Should the ministry responsible for ports also be responsible for the process of reform, or should this fall to an agency dealing with privatization generally, and over which the ministry responsible for ports has only indirect control? Should the process be managed at a national, regional, or local level? Should different reform units be organized for "greenfield" port developments and for the privatization of existing facilities? What powers should the reform unit have? How should the unit be funded? To whom will it answer? How will it obtain information from other organizations? Can part of its responsibilities be subcontracted? And importantly, what access will the unit have to key political decision makers?

Often, for the reform process to be implemented successfully, the mandate given to the reform unit must come from the highest levels of government, and the reporting must follow the same route. This avoids frequent interministerial conflicts over competence and jurisdiction. The agencies and individuals comprising membership of the reform unit also must be defined unequivocally by the political leadership.

Several organizational options are available for implementing port sector reforms. One agency can manage the entire process with individual transaction managers within that agency assigned responsibility for completing discrete transactions. Or, multiple agencies can be

assigned responsibility for sector reform and task forces created from these several agencies to accomplish component tasks and to complete individual transactions.

In managing the politics of reform, it is important to account for stakeholder interests and concerns. Stakeholders in ports include labor, existing public agencies, environmental groups, shippers, shipping companies, and other users of port services (for example, fishermen or the navy). Module 8 will examine workable processes for actively including stakeholder interests in policy decisions, or for otherwise factoring their interests into key decisions.

The reform unit will typically require consultant services to assist in the reform process. Issues relating to the use of consultants include determining what skills are needed, the criteria by which consultants will be chosen, the degree to which consultant services should be bundled together, and how consultants should be compensated (for example, a flat fee or a success fee).

Module 8 will provide some insights on these various aspects of implementing the reform process.

4.2.8. Sequencing of Transactions

In addition to preparing the variety of transactions associated with port reform for tendering or other actions, those charged with reform also have to consider the order in which the transactions will be undertaken.

When port operations are transferred to the private sector, the public sector retains only an indirect relationship with the service provider. The new relationship entails new tasks to be performed in the public sector. New skills are required to perform these tasks, requiring a period of training and possible assistance from consultants or advisers from other ports. A range of measures can be adopted to help to build the public sector's capacity to perform its new role as contract monitor and regulator. Preparing for this new role should be one of the first steps in the reform transaction process.

From the commercial perspective, several possible strategies should be considered when scheduling and programming port reform programs that include several components and multiple transactions. For example, the most valuable assets might be tendered first to attract investors and to increase their confidence in and familiarity with procedures in which they would encounter in future transactions. Another strategy is to offer all components at the same time—a “big bang” approach. This has the benefit of allowing some transaction preparation costs to be shared among several transactions and also allows a new set of competitive conditions to become effective more or less simultaneously.

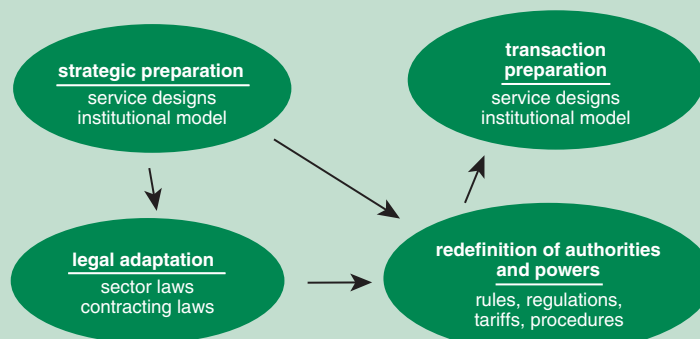
4.2.9. Transaction Preparation

At implementation, port reform requires the completion of a number of complex transactions in connection with the tendering of service franchises and asset ownership, or use rights. Transactions can be completed only after an elaborate preparation and due diligence process. Two key issues associated with transaction preparation are whether transaction preparation should be outsourced or completed by in-house government staff, and what kind of technical assistance the group responsible for transaction preparation within government will require.

In general, three approaches to transaction preparation are possible:

- Engaging a separate financial advisor for each transaction.
- Engaging one advisor for the entire set of transactions.
- Engaging no outside advisor, instead, learn about transaction preparation by preparing them in house.

Financial advisors add credibility to the claims and representations made in marketing a transaction. They are also helpful in assessing the market for port assets without compromising transaction integrity, and in packaging transactions to be marketable. However, some financial advisors are better than others. Engaging one is

Box 8: Shifting the Boundary of a Public-Private Partnership

Source: Author.

itself a significant transaction involving risks. Consequently, financial advisors should be selected with care, using a competitive process as with other transactions.

5. IMPLEMENTING PORT REFORM: PULLING IT ALL TOGETHER

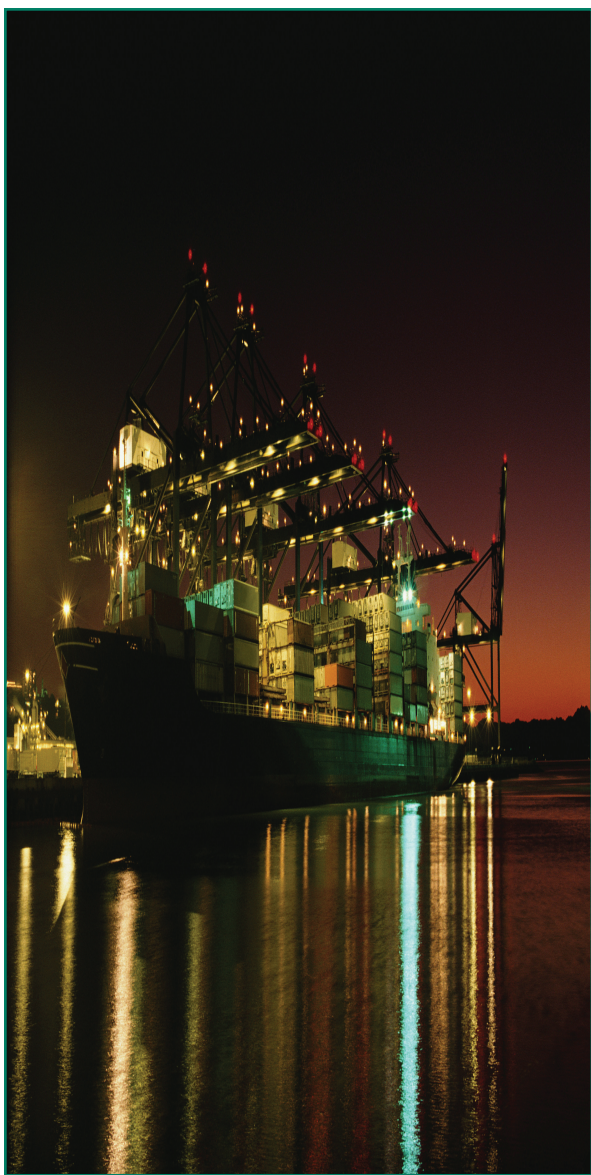
Port reform that shifts the boundary between the roles of the public and private sectors entails four broad categories of preparations:

- *Preparation of a port reform strategy:* Strategic preparation involves careful analysis of the port's competitive position, strengths, weaknesses, opportunities, threats, role in the national economy, prospects for growth, and other issues. This analysis results in the selection of a particular institutional model and the identification of a set of assets and

services that are the specific target for reform.

- *Preparation of redefined authorities and powers:* Redefinition of authorities and powers results in regulations, rules, tariffs, and procedures to ensure that all port activities are adequately coordinated and operate in a manner consistent with the public interest.
- *Preparation of a legal framework:* The legal framework for the port sector must reflect the principles set out in the strategic analysis and the redefinition of institutional rules.
- *Transaction preparation:* This process results in the development of tendering processes that are transparent, open, and competitive.

Box 8 illustrates these four sets of preparations and how they interrelate, and Module 8 explains them in more detail.

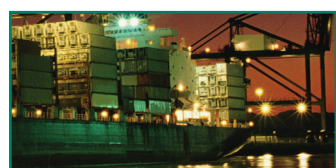


PORT REFORM TOOLKIT

SECOND EDITION

M O D U L E 2

THE EVOLUTION OF PORTS IN A COMPETITIVE WORLD



THE WORLD BANK

© 2007 The International Bank for Reconstruction and Development / The World Bank

All rights reserved.

The findings, interpretations, and conclusions expressed herein are those of the author(s) and do not necessarily reflect the views of Public-Private Infrastructure Advisory Facility (PPIAF) or the Board of Executive Directors of the World Bank or the governments they represent.

Neither PPIAF nor the World Bank guarantees the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of PPIAF or the World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

The material in this work is copyrighted. Copyright is held by the World Bank on behalf of both the World Bank and PPIAF. No part of this work may be reproduced or transmitted in any form or by any means, electronic or mechanical, including copying, recording, or inclusion in any information storage and retrieval system, without the prior written permission of the World Bank. The World Bank encourages dissemination of its work and will normally grant permission promptly.

For all other queries on rights and licenses, including subsidiary rights, please contact the Office of the Publisher, World Bank, 1818 H Street NW, Washington, DC 20433, USA, fax 202-522-2422, e-mail pubrights@worldbank.org.

ISBN-10: 0-8213-6607-6

ISBN-13: 978-0-8213-6607-3

eISBN: 0-8213-6608-4

eISBN-13: 978-0-8213-6608-0

DOI: 10.1596/978-0-8213-6607-3

MODULE TWO CONTENTS

1. Overview of the Competitive Landscape	21
1.2. Rivalry among Existing Competitors	23
1.2.1. Hinterland Market Access	24
1.2.2. Ability to Service Transshipment Trade	24
1.2.3. Regional Port Capacity and Demand	24
1.2.4. Ability to Create Competition within the Port	24
1.2.5. Stakes at Risk	25
1.2.6. Ability to Absorb Losses	25
1.2.7. Ability to Control Operations	25
1.2.8. Limits on Rivalry within Ports	25
1.2.9. Government Willingness to Subsidize Operations	26
1.3. Threat of New Competitors	28
1.3.1. Capital Expenditure for New Port Facilities	28
1.3.2. New Distribution Patterns	28
1.3.3. Provisions in Operating Agreements	28
1.3.4. Natural Barriers	29
1.3.5. Magnitude of Switching Costs	29
1.3.6. Cost Advantages and Customer Loyalties	29
1.4. Potential for Global Substitutes	29
1.4.1. Other Global Sources for Products Moving through the Port	29
1.4.2. Substitute Products for Exports and Imports	30
1.4.3. Magnitude of Switching Costs for Substitution	30
1.4.4. Demand Elasticity of Exports and Imports	30
1.4.5. Importance of Port Costs in Total Delivered Price	30
1.5. Bargaining Power of Port Users	32
1.5.1. Concentration of Port User Power	32
1.5.2. Impact of Changing Business Relationships	32
1.5.3. Presence of Large Value-Adding Tenants	33
1.5.4. Importance of Port to the Economy	33
1.5.5. Ability to Replicate Port Services	33
1.5.6. Facility Investments by Port Users	33
1.6. Bargaining Power of Service Providers	34
1.6.1. Experience and Capabilities of Service Providers	34
1.6.2. Participation in Facility Financing	35
1.6.3. Choke Points in the Port	35
1.6.4. Ability to Absorb Downtime	35
1.6.5. Interrelationships between Providers and Port Users	35
1.6.6. Rights and Obligations Conveyed by Contractual Agreements	35
1.7. The Bottom Line	36
2. Port Dynamics in the 21st Century	36
2.1. Globalization of Production	36
2.1.1. Vertical Specialization	36
2.1.2. Focused Manufacturing	37
2.1.3. Expanded Logistics Reach	37
2.1.4. Increased Sourcing Alternatives	37
2.1.5. Impact of Globalization on Ports	37
2.2. Changing Technology	37

2.2.1. Containerization of World Trade	39
2.2.2. Future Containership Designs	40
2.2.3. Impact on Port Operations	41
2.2.4. Need for Container Port Productivity Improvements	41
2.2.5. Growing Role of Information Technology	42
2.2.6. Port Requirements for Large Cruise Ships	42
2.2.7. Other Technology Affecting Port Services	44
2.3. Shifting Bargaining Power	44
2.3.1. Consolidation among Ocean Carriers	45
2.3.2. Emergence of Global Logistics Service Providers	51
2.4. Changing Distribution Patterns	52
2.4.1. Becoming a Hub	52
2.4.2. Benefits of Hub Status	54
2.4.3. Hub Problems	54
2.4.4. Inland Container Terminals Shifting Activities from the Port	56
2.5. Environmental and Safety Concerns	56
2.5.1. Growing Environmental Concerns	56
2.5.2. Recent Environmental Article	56
2.5.3. Issue of Substandard Ships	56
2.6. Impact of Changing Dynamics on Ports	59
3. Challenges and Opportunities	59
3.1. Transferring Port Operations to the Private Sector	59
3.1.1. The Need for Change	59
3.1.2. Impact of Privatizing Operations	59
3.1.3. Lessons Learned from Past Privatizations	60
3.1.4. Contingency Plan	61
3.2. Opportunities for the Private Sector	61
3.2.1. Terminal Operations	61
3.2.2. Towage Services	61
3.2.3. Maintenance Dredging	63
3.2.4. Information Technology	63
3.2.5. Environmental Facilities and Ship Safety	63
3.2.6. Other Port Services	63
References	67

BOXES

Box 1: The Competitive Landscape	22
Box 2: Checklist of Key Questions for Positioning in the Global Port Market	23
Box 3: Load Centers Competing for the Gulf Market	26
Box 4: Intraport Competition in the European Union	27
Box 5: Reebok Logistics Center in the Maasvlakte Distripark	31
Box 6: Enlarging Venezuelan Export Markets of Coal and Crude Oil	32
Box 7: Suppliers to Container Terminal	34
Box 8: Evolution of Containerized Shipping	38
Box 9: Development of Container Vessel Sizes as a Percentage of the Global Fleet	39
Box 10: Ships on Order as of September 2005	40
Box 11: Evolution of Cellular Fleet	40
Box 12: Future Containerships Require Increasingly Larger Cranes	41

Box 13: Impact on Port Productivity of Unit Voyage Cost of Large Containerships	43
Box 14: Ceres Paragon Terminal in Amsterdam, the Netherlands	44
Box 15: Port User Information Network	45
Box 16: Felixstowe Cargo Processing System (FCPS)	46
Box 17: Physical Requirements to Accept Cruise Ships	47
Box 18: Podded Electric Drive Impact on Requirements for Ship Assist in Port	47
Box 19: Top 10 Container Carriers as of June 2006	48
Box 20: Worldwide Container Traffic	49
Box 21: Global Terminal Operators 2005 Throughput League Table	49
Box 22: Key Milestones of Hutchison Port Holdings in the 1990s	50
Box 23: Hub and Spoke Container Distribution	53
Box 24: Hub Options on the Asia–Europe Route	55
Box 25: Duisburg Inland Container Terminals	57
Box 26: How a Major Transshipment Terminal and Pretty Bay Beach Coexist	58
Box 27: The Green Award Initiative	59
Box 28: Estimated Available Market in the Port Sector	61
Box 29: The Port of Hong Kong—Why is it so Successful?	62
Box 30: Ballast Water Treatment Plant in the Port of Portland	63
Box 31: Middle East Navigation Aids Service	64
Box 32: Checklist for Negotiating a Terminal Privatization	65

Acknowledgments

This Second Edition of the Port Reform Toolkit has been produced with the financial assistance of a grant from TRISP, a partnership between the U.K. Department for International Development and the World Bank, for learning and sharing of knowledge in the fields of transport and rural infrastructure services.

Financial assistance was also provided through a grant from The Netherlands Transport and Infrastructure Trust Fund (Netherlands Ministry of Transport, Public Works, and Water Management) for the enhancement of the Toolkit's content, for which consultants of the Rotterdam Maritime Group (RMG) were contracted.

We wish to give special thanks to Christiaan van Krimpen, John Koppies, and Simme Veldman of the Rotterdam Maritime Group, Kees Marges formerly of ITF, and Marios Meletiou of the ILO for their contributions to this work.

The First Edition of the Port Reform Toolkit was prepared and elaborated thanks to the financing and technical contributions of the following organizations.

The Public-Private Infrastructure Advisory Facility (PPIAF)

PPIAF is a multi-donor technical assistance facility aimed at helping developing countries improve the quality of their infrastructure through private sector involvement. For more information on the facility see the

Web site: www.ppiaf.org.

The Netherlands Consultant Trust Fund

The French Ministry of Foreign Affairs

The World Bank

International Maritime Associates (USA)

Mainport Holding Rotterdam Consultancy (formerly known as TEMPO), Rotterdam Municipal Port Management (The Netherlands)

The Rotterdam Maritime Group (The Netherlands)

Holland and Knight LLP (USA)

ISTED (France)

Nathan Associates (USA)

United Nations Economic Commission for Latin America and the Caribbean (Chile)

PA Consulting (USA)

The preparation and publishing of the Port Reform Toolkit was performed under the management of Marc Juhel, Ronald Kopicki, Cornelis "Bert" Kruk, and Bradley Julian of the World Bank Transport Division.

Comments are welcome.

Please send them to the World Bank Transport Help Desk.

Fax: 1.202.522.3223. Internet: Transport@worldbank.org

2

MODULE

The Evolution of Ports in a Competitive World

SECOND EDITION

The port sector has radically changed over the past two centuries. During the 19th century and first half of the 20th century, ports tended to be instruments of state or colonial powers and port access and egress was regarded as a means to control markets. Competition between ports was minimal and port-related costs were relatively insignificant in comparison to the high cost of ocean transport and inland transport. As a result, there was little incentive to improve port efficiency.

How times have changed! Most ports today are competing with one another on a global scale and, with the tremendous gains in productivity in ocean transport achieved over the past several decades, ports are now perceived to be the remaining controllable component in improving the efficiency of ocean transport logistics. This has generated the drive today to improve port efficiency, lower cargo handling costs, and integrate port services with other components of the global distribution network. Because of the capital intensity of such efficiency improvements, these have also generated the drive to unbind ports from the bureaucratic control of public entities and encourage private sector operation of a wide range of port-related activities.

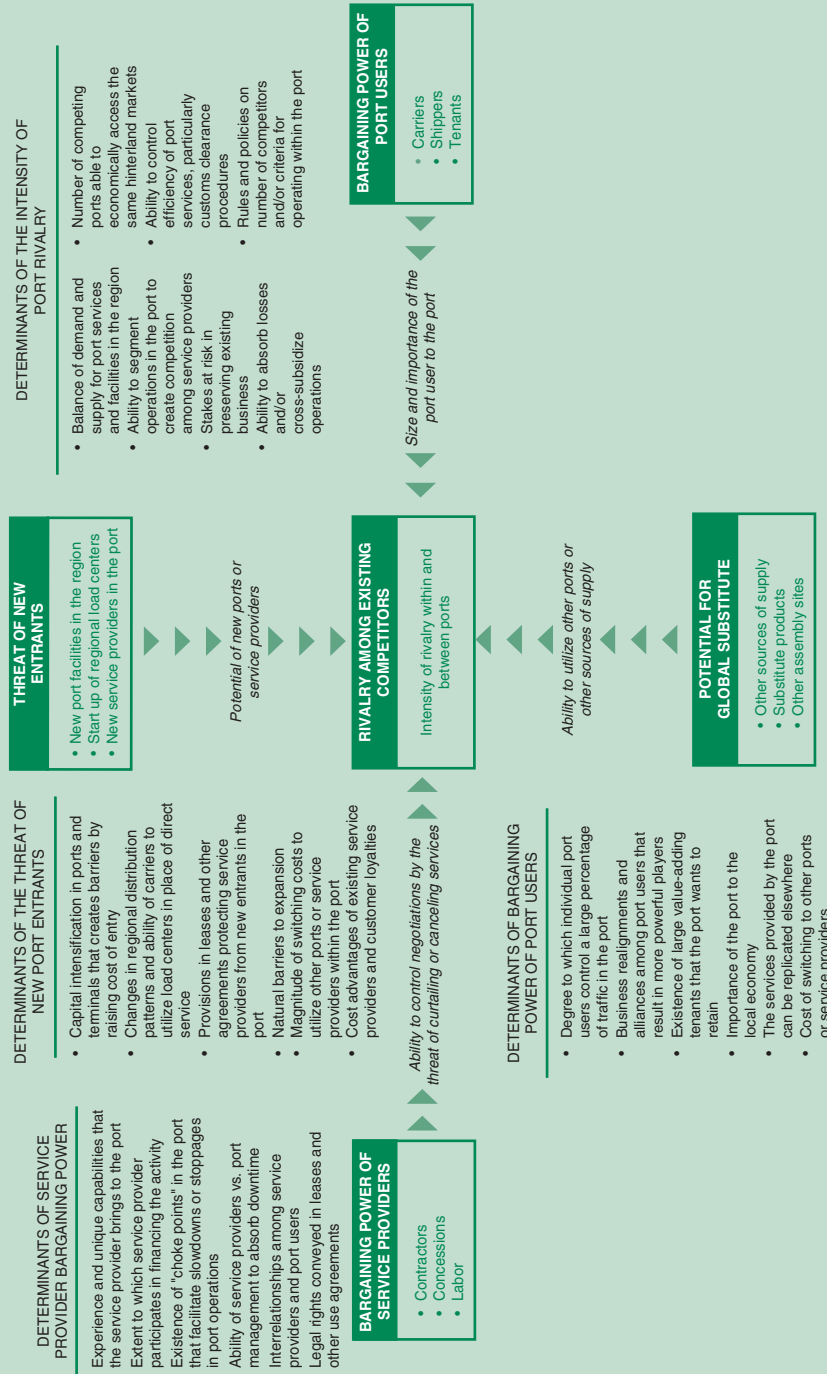
1. OVERVIEW OF THE COMPETITIVE LANDSCAPE

In the 21st century, five forces will interact to shape the competitive landscape facing port authorities and port service providers:

- 1) The rivalry among existing competitors.
- 2) The threat of new competitors.
- 3) The potential for global substitutes.
- 4) The bargaining power of port users.
- 5) The bargaining power of port service providers (see Box 1).

These forces will impact ports of all sizes, driving requirements for port expansion, service

Box 1: The Competitive Landscape



Source: Author.

improvement, pricing decisions, and other management actions. Winners and losers will emerge in the global port sector, largely dependent on how port managers strategically position themselves in the evolving competitive landscape (see Box 2).

1.2. Rivalry among Existing Competitors

The intensity of rivalry within the port and between ports is the first of five forces shaping

the competitive landscape. In some ports, there will be little if any rivalry given the location of the port, the type of services being provided, the rules on number of companies able to operate within the port, and other factors. In other situations, rivalry among competitors will be intense and often result in pricing that strips the suppliers of profits. There are several factors, discussed in the following sections, that determine the intensity of port rivalry.

Box 2: Checklist of Key Questions for Positioning in the Global Port Market

Here are some key questions that port managers and port service providers should ask when developing long-term strategy for market positioning.

Rivalry among Existing Competitors

Which other ports have access to my hinterland market?

- Is future supply and demand for port services in the region expected to be in balance?
- Are competing ports able to absorb losses through cross-subsidizing services?
- Who has the greatest stakes at risk in maintaining and growing traffic volume?
- Where do we have a comparative advantage over our competitors?
- What actions can we take to attract and lock in customers?

Threat of New Competitors

Are new ports being planned in the region that potentially access my market?

- What is the status of these plans and the likelihood the project will proceed?
- Will changes in distribution patterns create a new form of competitor?
- What actions can we take to minimize the impact on our existing market base?
- Which other companies are potential service competitors in the port?
- Can switching costs and other barriers be created to prevent market entry?

Potential for Global Substitutes

Are there other sources for products being exported through our port?

- Have ultimate users of cargo through our port the ability to use substitute products?

- Can manufacturers and assemblers shipping through the port shift to other sites?
- Are there potential developments that could impact the ability to substitute globally?
- How significant is port cost in determining market competitiveness of port customers?
- What barriers or incentives can prevent port customers from switching products or sites?

Bargaining Power of Port Users

To what degree do individual port users control traffic through the port?

- What is the potential for business realignments or alliances among customers in our port?
- How would these realignments or alliances change their bargaining power?
- To what extent can the services provided by our port be replicated elsewhere?
- What are the bargaining strengths and weaknesses of the port and port users?
- How can the port's bargaining strength be improved?

Bargaining Power of Service Providers

Which service providers are potential choke points in the port?

- What options are available to the port if negotiations with specific service providers fail?
- Has the service provider or port the greater capability to absorb port downtime?
- Does the service provider bring financing capability to negotiations with the port?
- Are there interrelationships between service providers and port users?
- What legal rights have been conveyed to the service provider by the port?

Source: Author.

1.2.1. Hinterland Market Access

In some situations, only one port can logically provide access to hinterland markets. This may result from geographical features, lack of adequate transport infrastructure from all but one port, political issues, or other factors. The port of Djibouti currently has a virtual monopoly on access to the Ethiopian market as a result of the conflict between Ethiopia and Eritrea and the lack of transport infrastructure from neighboring Somalia. Dar es Salaam is the major entry point to Tanzania, as well as the neighboring landlocked countries of Zambia, Burundi, Rwanda, and Malawi. Little general cargo enters Madagascar without passing through Toamasina. There is obviously little, if any, rivalry between ports in such circumstances. In other situations, many ports may be able to provide access to a common hinterland, creating intense rivalry for market share. Numerous ports on the U.S. East, Gulf, and West Coasts compete for traffic to and from the Midwest. Likewise, a number of large ports in Northern Europe and the Mediterranean compete for the European hinterland. In Asia, Hong Kong, Shekou, Yantian, Fuzhou, and other ports compete for access to the Southern China market and numerous ports in Northern Asia are available to service the Japanese and Korean markets.

1.2.2. Ability to Service Transshipment Trade

While rivalry for hinterland market access can sometimes be limited, rivalry for transshipment business is intense, even for ports that have established leading positions as load centers. Singapore established its role as the world's largest transshipment center as a result of an advantageous location on the Asia–Europe trade route and proximity to regional origin and destination centers in Southeast Asia. Algeciras, Malta Freeport and Gioia Tauro established their positions in the Mediterranean transshipment market as a result of their location on the Asia–Europe trade route and proximity to the Southern Europe and Northern Africa markets. Colombo and Dubai have established themselves as regional hubs for traffic to and from the Gulf

market and the Indian subcontinent. However, the strategic location of these ports has not precluded rivalry for business. Singapore is in an increasing rivalry with Port Klang, and more recently with Tanjung Pelepas. Several ports in the Mediterranean, such as Port Said East, Tangier, and Damietta, are increasingly competing with Algeciras, Malta Freeport and Gioia Tauro for regional transshipment trade. Salalah and Aden are now serious rivals to Colombo and Dubai for the Gulf and Indian subcontinent transshipment markets. These rivalries are often intense and create substantial pressure on transshipment pricing.

1.2.3. Regional Port Capacity and Demand

An imbalance of port capacity within a region will influence the level of rivalry between ports. Excess capacity will cause rival ports to aggressively compete for market share. Sometimes this can lead to destructive pricing. For example, the rapid growth in load center capacity in the Eastern Mediterranean has produced intense competition between hubs, and as a result ports such as Limassol and Damietta have been forced to aggressively compete to retain customers by pricing services so low that they may not be covering costs. Likewise, the inability within a region to generate sufficient traffic will increase rivalry for available business. The small hinterland of ports in the Caribbean constrains the market available to each port, creating the need to compete for all types of cargo rather than specialize in types of traffic for which the port might have comparative advantage.

1.2.4. Ability to Create Competition within the Port

The ability to segment operations in the port to create competition among service providers will often determine whether rivalry can exist within the port itself. Sometimes it is difficult or impossible to divide facilities in a way that enables more than one contractor to provide certain types of services within the port, particularly container terminal handling services, giving the contractor monopoly status. Much depends on the geographical layout of the port,

the available traffic, and the minimum capacity additions (taking into account the lumpiness of port investments).

In Beirut, a 20-year concession for handling containers in the port has been given to one contractor, as the layout of the port was considered to preclude more than one container terminal operator. In other situations, such as Jeddah, it was possible to segment container terminal facilities in a way that enabled the port to award long-term container handling concessions to two contractors, each operating in a separate location within the port. Even more competition has been created among service providers in Hong Kong, where three container terminal operators compete with each other and a variety of other service providers also compete for business within the port. In Buenos Aires, the geographical layout of the port and available traffic volumes ultimately enable not more than four terminal operators to compete.

1.2.5. Stakes at Risk

Rivalry will be influenced by the stakes at risk in preserving the market share of regional traffic. The greater the stakes, the more intense the rivalry to preserve market share. This takes on particular significance in modern container ports, considering the investment required to establish a new container terminal can easily exceed \$100 million. Whoever assumes the risk for this investment will clearly have a big financial stake in ensuring that the new terminal captures and preserves market share. APM Terminals, with sister company Maersk Line, has invested heavily in a new container terminal in Salalah and clearly has a stake in ensuring that the facility is efficiently used as their regional transshipment hub (see Box 3). Stakes at risk also stem from the importance of the port to the local economy. The Port of Rotterdam, for example, is a major contributor to the local economy and preserving market share in regional traffic flows is of vital importance to the local and regional government. This has resulted in an intense rivalry with other Northern European ports and underpins

the plan to invest more than \$2 billion in a new deepwater container terminal and a new railway connection to Germany to maintain position in the future market.

1.2.6. Ability to Absorb Losses

The ability to absorb losses and cross-subsidize operations within the port impacts the balance and intensity of rivalry. Global terminal operators with strong financial balance sheets and multiple operations worldwide may be willing to absorb losses in a particular region, at least for a limited period of time, to eliminate competition. Ports with multifaceted operations may be able and willing to cross-subsidize services to lower charges on port activities where there is greater rivalry for business. Likewise, port authorities involved in non-seaport-related activities, such as the Port of New York and New Jersey, may be able and willing to cross-subsidize port-related services through higher charges on non-port-related services.

1.2.7. Ability to Control Operations

Rivalry is also impacted by the ability of port authorities and port service providers to control the efficiency of port services. There are situations where entities operating in the port are outside the control of the port manager or service provider, effectively limiting the ability of the port to compete with other ports for market share. In particular, procedures and requirements imposed by customs frequently constrain the port's ability to compete for market share. In Jeddah, for example, clearance procedures have been the primary culprit, limiting the port's ability to grow as a load center for the Red Sea and Middle East markets. In the West African Port of Cotonou, customs processes became such a hindrance that long dwell times for containers were suffocating the port.

1.2.8. Limits on Rivalry within Ports

Limits that ports set on the number of eligible service providers impact the degree of rivalry. Many port authorities have policies limiting the number of stevedores, tug companies, and so

Box 3: Load Centers Competing for the Gulf Market

Several major ports are positioning to be entry and exit points for containers moving to and from the Gulf. It is producing a fierce competition for load center status. The outcome of this competition could significantly change the way ocean carriers service the Arabian Peninsula market.

Dubai

The port has established itself as a world-class transshipment hub serving as a load center for markets in the Gulf. Dubai handled about 6.3 million TEU in 2004, about a quarter of which was transshipment traffic within the Gulf, with Saudi Arabia, Kuwait, and Iran as the major destinations. The port authority clearly plans to retain its role in current transshipment markets, as well as position as the load center for containers to and from Iraq once trade resumes. As part of its strategy to control market position, the port has been acquiring management contracts for other ports and terminals in the region (next to international projects), effectively gaining control over regional logistics networks.

Salalah

The new transshipment hub on the Gulf is clearly designed as a load center for the region. The major advantage is its proximity to the Europe–Asia trade route. Main line ships have to make only a small deviation from their main navigation course, allowing a quick pit stop to pick up and drop containers for the Gulf, East African, and India–Pakistan markets. Six years after its start in 1998, it handled 2.2 million TEU, mainly at the cost of Dubai and Colombo.

Jeddah

This port now largely services the Saudi market and only 22 percent of the containers through the port are for transshipment. However, the proposed rail land bridge to Dammam could enable the port to function as a load center for the Gulf market. The investment in infrastructure is substantial and major hurdles are in the way, particularly establishing a process for allowing transit containers to move freely across the country without regard to contents. But if the rail investment is realized and the hurdles resolved, Jeddah could be a major contender for traffic to and from the Gulf. In 2005, a tender for a build-operate-transfer (BOT) concession of the railway line was being solicited, which could bring the railway project closer to fruition.

Beirut

Then there is the new container terminal in Beirut that started operations in the beginning of 2005 with a capacity of 700,000 TEU. This terminal has the potential to become the major load center for containers moving between the Gulf and Europe/North America. Cross-border issues are hurdles that must be resolved. But the use of Beirut as a load center will avoid passage through the Suez Canal and save 3,400 miles of sea voyage to the western Gulf. The line haul route could be served using two fewer ships in the weekly string, the economics of which could be very attractive to owners.

Source: Author.

forth that can operate in the port. Sometimes these limits are set by entry criteria that effectively limit the number of competitors. In some situations, these limits are not due to port policy, but result from historical precedent limiting competition. Such a situation is difficult to change. Japanese ports, for example, are largely controlled by a number of small- and medium-sized stevedoring companies that have existed for many decades. Entry of new stevedores has been difficult, if not impossible, and the Japanese Minister of Transportation attributes this lack of rivalry to Japan's ports inability to compete with its Asian rivals.

1.2.9. Government Willingness to Subsidize Operations

Rivalry between ports is sometimes influenced by the availability of public funds to offset losses, blurring the role of commercial forces.

Governments sometimes subsidize ports on the basis that they are vehicles for economic growth. European ports have for many years been willing to subsidize port access and quays to achieve larger economic goals. At present, the European Commission is taking steps to improve the situation of port competition (see Box 4). The objective of these subsidies is to create artificial forces that

Box 4: Intraport Competition in the European Union

Port competition is high on the agenda of the European Union (EU). One of the conclusions of the Meeting of the European Council in Lisbon March 28, 2000, was that transport is among the areas where the Commission, the Council, and the member states were asked to speed up liberalization. On February 13, 2001, the commission adopted a communication to the European Parliament and to the Council, "Reinforcing Quality Service in Seaports: A Key for European Transport" (the Ports Package). The cornerstone of this communication was a proposal for a directive of the European Parliament and the Council on "Market Access to Port Services." Of the 25 member countries, 21 have seaports through which in 2002, 1.2 billion tons of cargo were traded with non-EU member countries with a total value of 773 billion.

It is envisaged that the cost of handling these cargoes in ports can be reduced through liberalization of port services. The Directive on Market Access to Port Services aims to increase of intraport competition for cargo and ship handling services. The directive includes measures for self-handling of cargo and passenger operations and mandatory authorizations for all service providers. Self-handling means that an undertaking, which normally could buy port services, provides for itself using its ship and land-based personnel and own equipment. Also a wider use of the pilot exemption certificate is envisaged.

The proposals are drawing a great amount of opposition from stakeholders. Port labor unions see their position weakened by the arrival of land-based personnel of the shipping companies. Pilots see their position weakened by a greater use of pilot exemption certificates. Many companies presently in monopoly situations will require an authorization for their activities with a duration corresponding with the economic lifetime of their investments. Generally they find these periods much too short, the compensatory measures with termination of contracts too poorly defined, and see only more bureaucracy coming.

The public-private roles of the ports of EU member states differ greatly for the Hanseatic ports of Northwest Europe with their landlord type model, the Mediterranean ports with the great influence of the central governments, the United Kingdom's (UK) private ports, the ports

in the formerly centrally planned states of Eastern Europe, and the ports of the other countries. The impact of the directive therefore will differ strongly too. At one end are the UK private ports arguing that they already have privatized everything and that the measures concerning authorization of port services are a step back, increasing bureaucracy, and at the other end are the ports of some Mediterranean countries where liberalization is still in its initial stages.

The proposal is leading to an extensive debate both within the interinstitutional legislative process and also with and between stakeholders. After three years of discussion, however, the European Parliament in a plenary session rejected the proposal in 2005 something that seldom occurs in the European parliamentary practice. In 2005, the European Commission (EC) was anxiously studying compromises that would be acceptable for both the parliament and the EC.

Interport Competition in the European Union

The amount paid by different European seaports for maritime access, coastal defense, quays, port basins and jetties, and the degree at which such costs are recovered from the ports users vary greatly. For many ports it is not possible to obtain sufficient insight from the official published sources, so it remains unclear to what extent countries are subsidizing their ports. There are also different opinions about the nature of some costs; for example, the provision of maritime access should be considered as a public good, so the related costs don't need to be recovered from specific users.

The EC therefore issued a Directive of Financial Transparency that should apply to all ports covered by its legislative proposal and which are subsequently subject to the State Aid Guidelines (an exclusive EC competence) on the financing of port infrastructure. At present, the issue is highly relevant for the ongoing container port expansion programs, such as the Deurganck Dock of Antwerp in Belgium; the Port 2000 Project of Le Havre in France; the expansion projects of Bremerhaven, Wilhelmshaven, and Hamburg in Germany; and the second Maasvlakte project of Rotterdam in the Netherlands.

Source: Author.

influence the chance of rivals' success. There are indications that government subsidies in the Mediterranean may be affecting the ability of transshipment centers to compete for business.

1.3. Threat of New Competitors

The second of five forces shaping port reform is the possibility of new port facilities or service providers within the port. This would include creation of new regional load centers that change the way cargo to and from a country's hinterland is distributed. The significance of this threat will vary from port to port depending on a number of factors.

1.3.1. Capital Expenditure for New Port Facilities

The capital cost required to build a new port facility frequently provides a barrier to new competitors. Large up-front expenditures are often required for dredging, quay construction, access roads, and port superstructure. These start-up costs provide an entrance barrier that can often deter all but the most aggressive players. But there are instances where new entrants will take the risk of major investments in new ports when they see an opportunity for market positioning. An example of new entrants taking a large risk occurred at the Port of Tanjung Pelepas on the southwest tip of Malaysia, where almost \$745 million was invested to build a dedicated container port. The developers saw the opportunity to tap into the large and lucrative container market, which until then had been largely dominated by Singapore and to a smaller extent by Port Klang. Throughput increased from 0.4 million TEU (twenty-foot equivalent unit) in 2000 to 4 million TEU in 2004, and is expected to increase further.

1.3.2. New Distribution Patterns

Changes in distribution patterns can create new port competitors. This is particularly the case in containerized trades, where a newly created regional load center can siphon traffic from traditional ports in the region. In the Gulf, for example, the newly created load center in

Salalah siphoned a substantial part of the fast growing transshipment business of the Gulf from ports such as Jeddah, the UAE ports, and Colombo. Since its start in 1998, the throughput increased to 2.2 million TEU in 2004. Based on this success, the investors have ambitious plans for further development of container, general cargo, and bulk handling facilities and also in free trade zone (FTZ) activities. Similar plans started also for the port of Aden. Another example includes the increase in All Water Express Services between Asia and the U.S. East Coast via the Panama Canal. As congestion in the U.S. West Coast ports increases with the strong growth in the Pacific Rim trades, shippers are adjusting supply chains to account for the longer transit time, but realizing the benefits of less delays and lower total costs. The result is creating pressure to develop alternative gateways to the U.S. hinterland market that may open opportunities for neighboring Canada and Mexico. There are also instances where a new port can provide access to a hinterland via overland transit, providing competition to a port more locally sited. The new Port of Ain Sukhna in Egypt at the northwestern end of the Red Sea became operational in 2002, and became, with a throughput volume of 238,000 TEU in 2004, a strong competitor to Egyptian ports in the Mediterranean.

1.3.3. Provisions in Operating Agreements

Provisions in leases, concessions, and other agreements, particularly those involving investment by the operator, will often provide some degree of protection from new competitors starting up business in the port. In other situations, however, the port service provider can be threatened with new entrants. Nowhere is this better evidenced than in Northern Europe, with the success of the Dutch tug company Kotug in expanding its tug assist business in this region's ports, which have traditionally been the realm of long established players. Since Kotug started its towage services in the Port of Rotterdam in 1988, a price war was triggered with prices of towage services being reduced about 25 percent. In 1996, Kotug expanded its services to the Port of Hamburg,

and in 1999 to Bremerhaven. Concurrently, one of the players in Hamburg started operations in 1998 in the Port of Rotterdam.

1.3.4. Natural Barriers

Natural barriers that constrain port capacity can limit the threat of new port entrants, particularly those requiring land or fixed facilities to operate within the port. In many ports there simply isn't space for additional berthing, storage, and other fixed facilities, providing some insulation from the entry of new competitors. However, these barriers can easily be overstated. In the long term, many of these barriers can be overcome by building in adjacent locations or extending out into the sea. There can also be new methods of operation introduced that do not require presence in the port. For example, an inland container depot could substitute for storage and other operations now performed in the port. The Italian port of La Spezia has a chronic lack of space and has constructed the Intermodal Center of San Stefano Magra for this purpose. In Western Europe, intermodal container depots situated along inland waterways are playing an increasing role to relieve congested ports and roads.

1.3.5. Magnitude of Switching Costs

Existence of switching costs will often determine the ability of new entrants to start up competing operations, either within a port or between ports. Switching costs can come in several forms. They could be the capital expenditure required to switch from one port facility to another. In some cases, this can be a very small cost, especially for carriers that have little fixed investment in a facility. A pure transshipment facility for containers, such as Kingston, Jamaica, can be particularly vulnerable to switching as the carriers using the facility may incur little switching cost in shifting to a competing facility. In other cases, this cost can be substantial. Carriers can have a considerable amount of equipment positioned in a port that would need to be shifted to another port if they were to switch operations. Also, some carriers have heavily invested in port and terminal infrastructure. In instances where major bulk handling facilities have been created, switching is

almost impossible. Another form of switching cost is the need to establish a service network in the new port, which could entail a considerable amount of learning and experience costs. Then there's the switching cost incurred by the disruption in service during the transition period. Ports, and service providers within a port, can often protect their market position by ensuring that these switching costs are maximized.

1.3.6. Cost Advantages and Customer Loyalties

Cost advantages of existing service providers and customer loyalties will affect the threat of new entrants. There may be economies of scale or experience that enable established players to retain the position of cost leaders if new entrants were to start up business in the port. This could result from a variety of factors, including having the better location in the port, having sunk investment in facilities and equipment, or employing experienced personnel. While customer loyalties can be ephemeral, quality of service (for example, responsiveness to customer needs, handling rates, clearance time, and so forth) can differentiate the service provider and limit the threat of new entrants. Sometimes these customer loyalties can result from the threat of reprisal should the customer shift to another service provider or another port.

1.4. Potential for Global Substitutes

The third force shaping the competitive landscape of port reform is the potential of port users to shift to other global sources, impacting the level of activity in the port. This force takes on greater importance as world trade is opened to competition, sourcing of supply becomes increasingly global, and vertical specialization becomes an increasingly important factor in global logistics chains. Several factors will determine the importance of this force on specific ports.

1.4.1. Other Global Sources for Products Moving through the Port

The extent to which there are other global sources available to customers now shipping through the port will determine the ability to

source elsewhere. Various types of fruits and vegetables provide good examples of substitute global sources. Bananas, for example, can be sourced from West Africa, Central and South America, the Caribbean, or Asia. Manufacture of clothing is also globally footloose, with many potential source locations. The efficiency of port facilities in each of the export locations will impact the success of the product in the export market, which ultimately affects the level of activity moving through the port.

1.4.2. Substitute Products for Exports and Imports

Foreign buyers may be able to substitute other products for the product they are now shipping through the port. For example, a power plant utilizing imported coal as feed may be able to switch to oil or gas as feed if the economics shift in favor of the latter. Port costs to handle coal are one of the factors that impact the economics of utilizing coal as feed, and exports of coal through the port could certainly be affected if the foreign buyer shifts to gas or oil as feed.

1.4.3. Magnitude of Switching Costs for Substitution

There may be significant cost in switching to other sources, products, or assembly sites that will impact the ability of port users to substitute globally. The greater this cost, the greater the port's bargaining power. Ability to shift to other global sources can be limited by the port users' reliance on value-adding services in or near the port, involving integration of imported intermediate goods with domestic produce for final sale to the domestic or export market. These value-adding services can be costly to replicate elsewhere and affect the ability to shift to other global sources. For example, the large free zone in Jebel Ali enables tenants to import and assemble intermediate products into final products, utilizing a large pool of inexpensive expatriate labor for the assembly process. While many of the value-adding activities performed in Jebel Ali can be performed elsewhere, the alternatives may involve significantly higher labor cost and a less friendly government

environment. It may also entail walking away from a high sunk cost. Reebok, for example, has established a large final assembly and distribution center in the Port of Rotterdam to service the European market. While this value-adding activity could be shifted to another location, there is a sizable sunk cost associated with the existing facility (see Box 5).

1.4.4. Demand Elasticity of Exports and Imports

Another factor determining the potential for global substitutes is the elasticity of demand for the country's exports and imports. The greater the elasticity, the greater the possibility that buyers can do without the product. Doing without the product is a form of substitution by the buyer that will impact the volume of traffic for that product in the port.

1.4.5. Importance of Port Costs in Total Delivered Price

Cutting through all of the above is the issue of how significant port-related costs are as a percentage of total delivered price. Many shippers consider port costs to be among the more controllable expenditures in the logistics chain. In general, the higher the percentage that port costs are of total delivered price, the more impact port costs will have on buyer behavior. For high value commodities, such as electronics, port costs can be less than 1 percent of the delivered market value. For low value commodities, such as bagged rice, port costs can be more than 15 percent of the delivered market value. Shippers of electronics may be less influenced by port costs in selecting ports than shippers of rice. However, small cost penalties may not be acceptable even when port costs are a small percentage of the total delivered price. These penalties may represent the difference between profit and loss in the marketplace and influence the selection of the port, depending on whether the port user has the option to ship through another port, not buy the product, or find another market.

Maritime transport costs have an important share in the landed price of bulk commodities such as coal, cement, and crude oil. An increase of the

Box 5: Reebok Logistics Center in the Maasvlakte Distripark

Value-adding activities have been created in many ports to enhance trade and generate employment for the local area. The key ingredients are efficient port operation, availability of good transport services, and attractive prices for land, labor, and energy. The Reebok state-of-the-art logistics center in Rotterdam illustrates how one port helped create a value-adding service that generates employment for 300 personnel and contributes \$6 million in direct income to the local community.

Reebok Product Lines and Logistics

Reebok has two product lines, footwear and apparel. In 1998, footwear accounted for 57 percent of international sales, apparel 43 percent. Reebok products are actively marketed in 170 countries and territories. The United Kingdom (UK) is the largest market for Reebok products in Europe, representing 30 percent of total European sales. Spain is another big market for Reebok products. Almost all footwear is supplied from plants in the Far East and is transported in containers. Most apparel is supplied from plants in southern Europe, and moved by truck and container from plants in Portugal, Greece, and Turkey.

Restructuring of Logistics Activities

In 1995, as part of a global restructuring of logistics activities, Reebok decided that warehousing and distribution activities in Europe should be consolidated. Instead of having warehousing facilities in each market, a bulk logistics facility would be established in mainland Europe to supply pick-and-pack warehouses in the UK and Spain, as well as directly supply other markets in Europe. Except for some very large accounts (which are serviced direct) and apparel for Southern Europe (which is warehoused in Spain), all product flow to the European market would pass through this logistics center. France, Belgium, and the Netherlands were considered as potential locations. Following assessment of each of these

locations, Reebok decided to locate the logistics center in the Netherlands. The site chosen is in the Distripark 3 in Maasvlakte, at the sea edge of the port property. In November 1998, the facility began receiving product.

Why the Port of Rotterdam Was Selected

Reebok had a variety of reasons for choosing this site. It is close to the new deepwater container terminal in the Port of Rotterdam, a facility that is generally regarded as one of the most advanced and capable terminals in Europe. The location is on the coast, which provides easy access to short sea transport to the UK market. There is a good supply of warehousing labor in the Rotterdam area, despite the fact that the general labor market is tight. Most people in the Netherlands understand English, which was considered important by Reebok. Customs in the Netherlands is considered to be efficient and business friendly. While not an advantage, labor costs and regulations concerning labor practices were considered to be similar to those of other countries in Europe. But most importantly, space was available and the port wanted to have a launching customer in the new Distripark. So the port, in combination with the municipal government, proactively pursued Reebok and provided strong incentives to locate the facility in Maasvlakte. Based on a six-year operating lease with a five-year renewal option and substantial residual value guarantees by Reebok, the port funded construction of the state-of-the-art 700,000 square foot logistics facility. The port also created the necessary infrastructure to connect the facility to the adjacent container terminal, facilitated creation of a bus service fitted to the plant shift system, and provided a contact person to deal with problems and issues. Reebok describes its relationship as “a partnership with the port.”

Source: Author.

available draft enables the deployment of larger ships, the realization of economies of ship size, and a better access to world markets. The regional government of the state of Zulia in Venezuela has plans to deepen the Port of Maracaibo by shifting to a location nearer to the sea

(see Box 6). As a result, shipments of coal and crude oil presently carried in consignments of about 60,000 tons can be shipped in consignments two to three times bigger, reducing shipping costs up to \$3 per ton for exports of coal to Western Europe.

Box 6: Enlarging Venezuelan Export Markets of Coal and Crude Oil

The entrance channel of the Port of Maracaibo has a draft limitation ranging from 37–39 feet. This limits the size of the consignments carried by tankers and dry bulk carriers leaving the port. In practice, vessels of more than 100,000 dwt (dead weight tonnage) are calling in partly loaded condition, with consignments of about 60,000 tons. Plans are being considered to enable the port to accommodate ships with a draft of up to 54 feet. This will lead to a reduction in shipping costs of up to \$3 per ton for exports to West Europe. As a result, Venezuelan coal and crude oil can be shipped cheaper to its present customers, particularly those in North America and Western Europe.

1.5. Bargaining Power of Port Users

The bargaining power and control over port management exercised by carriers, shippers, and tenants in varying degrees are also significant forces shaping the competitive landscape of port reform. Bargaining power of port users is determined by a number of factors, which are outlined below.

1.5.1. Concentration of Port User Power

The larger percentage of traffic in the port controlled by an individual user, the more bargaining power that user has in negotiations with port management and service providers. In some situations, the port user can be so powerful that the port literally cannot afford to lose its business. Even the largest ports must contend with extremely powerful carriers that have the option to take their business elsewhere. A major container carrier leveraged its size and market share to get concessions from the Port of New York and New Jersey as a condition of using the port as a load center on the U.S. East Coast. The port did not want to lose a carrier that commanded 20 percent of the port's container volume. Given this control over a large port, consider the bargaining power that the carrier has in dealing with a

small or midsize port where there are options for using other facilities.

In the Caribbean, large cruise lines such as Carnival, Royal Caribbean, and P&O have great bargaining power with the cruise ports that they serve. These three companies control more than 50 percent of industry capacity and their decisions on which ports to call can have major impact on a local economy. Some years ago, Carnival decided to reduce cruise ship visits to Grenada as a protest to the imposition of cruise taxes by the government, an action that seriously affected the economy of the small nation.

1.5.2. Impact of Changing Business Relationships

Business realignments and agreements among port users can result in powerful players that port managers and port service providers must contend with in contract negotiations. These can take the form of conferences, slot sharing arrangements, strategic alliances, mergers, and others. The result in each case can be greater concentration of port business among a smaller number of port users. When representatives of the Grand Alliance (comprising P&O, Nedlloyd, NYK, OOCL, and MISC) sit down with a port to negotiate future contract terms, the port is dealing with a formidable alliance of carriers that previously had been individual customers. Maersk's acquisition of Royal P&O Nedlloyd in 2005 gave Maersk control of 18 percent of the total world container vessel capacity, which is not excessive in itself. The market share, however, varies per trade route and is around 22 percent on the Europe–Far East, 14 percent on the transpacific, and 19 percent on the transatlantic trade routes. On some North–South trade routes the market shares are higher, such as 26 percent on the Europe–India route and 28 percent on the Europe–East Coast South America trade routes. On the Europe–South Africa and Europe–Australia–New Zealand trade routes, however, the market shares became considerably higher and resulted in mandatory downsizing in these trades.

1.5.3. Presence of Large Value-Adding Tenants

Bargaining power will be influenced by the existence of large value-adding tenants that the port wants to attract and retain. A major port tenant employing a large number of personnel and substantially contributing to the local economy is in a position to extract concessions that would not necessarily be available to smaller players. The Port Authority in Portland, Oregon, has targeted auto imports as a strategic business sector that it wants to retain and grow. Three car manufacturers (Hyundai, Honda, and Toyota) now lease several terminals from the port authority to process and accessorize imported cars. Keeping these three auto manufacturers in the port is a high priority objective, and the port authority provides favorable terms to these large users that may not be available to smaller tenants.

1.5.4. Importance of Port to the Economy

The more important the port to the national economy, the more pressure there will be on port managers to attract and retain valuable customers. Some ports can be extremely valuable players in the national economy and the loss of major customers could have a big ripple effect on employment and local income (see Box 7). For example, the Port of Rotterdam is a key element in the Dutch economy and development projects undertaken by the port over the past decade have created more than 45,000 man-years in temporary employment and 17,500 man-years in permanent employment in the Netherlands.

Current and prospective port users can employ the importance of the port to the local economy as a bargaining chip in negotiations over tariffs, service, or facilities. The larger the contribution of the port user to the local economy, the greater the user's bargaining power with the port.

1.5.5. Ability to Replicate Port Services

Port users will have strong bargaining power if the services provided by the port can be replicated elsewhere. Essentially this comes down to

whether there are alternative facilities available to the port user. The more opportunity there is to use other facilities, the less bargaining power the facility owner has over the user. Nowhere is this better illustrated than in Northern Europe, where a number of large container handling ports are available for entry and exit in the European market. Carriers can react to tariff increases, efficiency issues, or problems by shifting or threatening to shift to other ports. Some years ago, the Grand Alliance decided to temporarily shift one of its five Europe–Asia services from Rotterdam to Antwerp on the basis that it was experiencing delays in Rotterdam. This decision shifted, on an annual basis, some 125,000 TEU from Rotterdam to Antwerp, until the delays in Rotterdam were corrected. In the mid Mediterranean, Malta Freeport and Gioia Tauro are equally situated to provide transshipment service to carriers. Each port must consider the potential actions of the others when negotiating with current or prospective customers because customers have the ability to take their business to the other port.

1.5.6. Facility Investments by Port Users

A carrier, shipper, or tenant who has a major investment in facilities in the port, or has structured its operations in a way that prevents easy transfer of operations to another facility, faces switching costs that limit bargaining power. For example, a joint venture of Saudi and U.S. interests began operating a rice processing plant in the port of Jeddah in October 1995. It is the largest rice handling facility of its type in the Middle East and the investment in the facility creates an exit barrier should the operator become dissatisfied with the service received from the port. Another example is the container load center in Salalah, where Maersk Line is a major investor in the terminal along with the government of Oman. It's difficult to pack up and leave this facility if there is unhappiness with port policies. At the same time, sunk costs in facilities do not preclude leaving when things get too bad. International Container Terminal Services, Inc. (ICTSI) of the Philippines decided to pull out of the Port of Rosario in Brazil after

Box 7: Suppliers to Container Terminal

Since opening in 2000, the terminal in Tanjung Pelepas, Malaysia, created businesses for 710 companies that did not exist before the terminal went into operation.

Suppliers to Tanjung Pelepas Container Terminal			
Types of services	No. companies	Types of services	No. companies
Warehousing	9	Bunkering and lubricant	11
Manufacturing	2	Port development contractors	15
Parts distribution hub	1	Duty-free shop	1
Vehicle storage	1	Insurance services	1
Haulage/trucking	28	Pest control	1
Container maintenance	1	Health clinic	1
Forwarding agent	12	Cleaning services	3
Freight forwarding	28	Landscaping	1
Logistics	32	Canteen operators	5
Lashing contractors	2	Convenience Store	5
Prime mover contractor	2	Fixed assets supplier	2
Waste collection	2	Sundry suppliers	532
Ship Chandelling	7		

Terminals in Bremerhaven, Germany and Salalah, Oman have more than 350 and 400 suppliers respectively.
Source: APM Terminals International B.V.

having invested \$27 million in a failed effort to operate the container terminal. Europe Container Terminals (ECT) left Trieste after a one-and-a-half-year effort to operate the Molo VII container terminal. Both contractors decided that future losses would be greater than the cost of pulling out. State-owned, Singapore-based operator, PSA International (PSA), met difficulties with its Aden terminal in 2002, and was, according to the contract, bought out by YemenInvest.

1.6. Bargaining Power of Service Providers

The final force shaping the competitive landscape of port reform is the bargaining power of port service providers. A variety of operators and groups often have the ability to exercise control over the port by threatening to curtail or cancel services. At present, more than half the world's container terminal capacity is managed by a small number of companies, approximately 15, defined as global terminal operators.

These companies have operations in more than one region in the world and handled an estimated 206 million TEU in 2004. It is expected that the market share of these companies will increase to 55–60 percent by 2010. These large players can tilt the scale in negotiations with port authorities. The extent of service provider bargaining power is determined by a number of issues.

1.6.1. Experience and Capabilities of Service Providers

Experience and the unique capabilities that the service provider brings to the port are a factor determining its bargaining position. The greater these capabilities, the more power the service provider has in dealing with the port. A contractor that has operated in a port for many years, has established a cadre of very experienced personnel, and has accumulated a large inventory of equipment needed to perform the job would more likely be able to extract favorable terms from the port than a start-up company.

Likewise, a contractor with unique skills, such as handling hazardous cargo or chemicals, is in a good bargaining position. Large global terminal operators are also in a good bargaining position because they are often perceived as bringing experience and unique capabilities based on their operations elsewhere, loyalties of a customer base, networking possibilities, and access to financing. The contract for Dubai Ports World (DPW) to manage the Port of Djibouti was largely based on the perception that DPW could transfer experience in port operations in Dubai and increase regional market access to Djibouti.

1.6.2. Participation in Facility Financing

A service provider that participates in the financing of an activity is clearly in a better bargaining position than one who does not. Many port services that are privately operated as concessions involve some degree of financing by the operator and, in many cases, the contractor offering the best financing terms is in position to get the concession. The developer of the new container terminal in Aden chose PSA Corporation as the operator partially because PSA was willing to participate in financing the \$200+ million infrastructure development.

1.6.3. Choke Points in the Port

Existence of choke points in the port that facilitate slowdowns or stoppages of port operations provides a power that is often employed to extract concessions from port management. Sometimes the choke point can be an activity in the port, without which the port cannot function effectively. Tug service is an example; if tugs are not available for ship assist, the port may continue to function, but not necessarily at the normal level of efficiency. Sometimes the choke points can be personnel in the port; a labor stoppage in cargo handling or other strategic services can shut port operations down. The choke point can also be trucking to and from the port, warehousing operations, or other services where a slowdown for whatever reason can quickly stall operations in the port. Service providers in these

types of activities have considerable bargaining power in dealing with port management.

1.6.4. Ability to Absorb Downtime

The ability of service providers compared to port management to absorb downtime also affects the balance of bargaining power. Service providers with deep pockets may be willing to take a loss of revenue for a substantial period to get what they want from the port.

Meanwhile, the port can be under substantial government and commercial pressure to resolve the conflict and get the port back into operation. Strikes in the Israeli ports of Ashdod, Haifa, and Eilat in 2005 created a backup of vessels in the ports and generated calls from many sides to reach a resolution as soon as possible. In addition, the management lock-outs in October 2002 during the labor contract negotiations (Pacific Maritime Association versus the International Longshore and Warehouse Union) caused havoc in the U.S. West Coast ports, taking months to process the backlog of vessels.

1.6.5. Interrelationships between Providers and Port Users

The existence of interrelationships between service providers and port users can influence the power structure in the port. These interrelationships can affect decisions regarding port operations, leases, berthing rights, and other issues. Uniglory, for example, is the feeder ship subsidiary of Evergreen, which in turn is one of the major line haul container carriers. A port that wants to attract line haul calls by Evergreen could be willing to extend berthing terms to Uniglory that are more favorable than would be given to a feeder ship operator who is independent. Uniglory can exploit this relationship to strengthen its bargaining position in negotiating terminal concessions.

1.6.6. Rights and Obligations Conveyed by Contractual Agreements

Lease agreements and other contracts to use port facilities include provisions that convey legal rights and obligations to the port service

provider. These contract terms will set boundaries on the port service provider and port in future negotiations. The rights can be extensive, giving the provider exclusive rights to operate in the port for 20 plus years with little if any control by port management. Or they can be very limited, giving the port the right to exercise a great deal of control over the performance of the service provider, including provisions in the contract specifying a minimum investment program that must be fulfilled by the contractor. As the contract between the port and service provider will set the boundaries for future bargaining, the need for a well-planned, careful negotiation to develop the contract can't be overemphasized.

1.7. The Bottom Line

Ports no longer operate in an insulated environment. They face the same competitive forces that companies in other industries experience. There is rivalry among existing competitors, the continuing threat of new entrants, potential for global substitutes, and the presence of powerful customers and powerful suppliers. Dealing with these forces is a continuing challenge for the port manager. It requires that the port manager be keenly aware of port user requirements, know their constraints in the global market, and have a strategy for making the port a partner in business development.

2. PORT DYNAMICS IN THE 21st CENTURY

The 21st century will see radical changes in the business base underlying port operations. Increasingly, intense global competition will force changes in the way all players in the international logistics chain, including ports, conduct business in the future. Innovative systems and new technology will radically change requirements for port infrastructure and increase the degree of specialization, raising the financial stakes of port investments and the need for a highly specialized workforce. Realignment and consolidations among port users and port service providers will continue, creating a fluid base of players with whom ports

do business. Changes in distribution patterns and in the structure of the maritime geography will increasingly create a hierarchy of ports and some historical port-related activities will be shifted to inland sites. Environmental, safety, and security concerns will force ports to impose regulations and provide facilities that may have no commercial return on investment.

2.1. Globalization of Production

The world economies are becoming increasingly interrelated as a result of increasing trade and the growing trend toward globalization of production. Over the past half century, most countries have seen an increase in exports as a share of gross domestic product (GDP) and there has been an increase in vertical specialization of world trade. In addition, sourcing of raw materials and finished products has become increasingly globalized, and producers in various, often distant areas of the world are increasingly forced to compete with one another for the same markets. The basic forces that have triggered the greater interrelation and interdependency of the world economies remain active. Thus, there is no reason to think that these trends will not continue.

2.1.1. Vertical Specialization

The increasing vertical specialization of world trade has had significant impact on the global logistics system of many manufacturers. It has added links to global supply chains and increased the transport intensity of production processes. Firms have been increasingly concentrating on exploiting their core competencies and subcontracting out a number of noncore manufacturing and assembly activities to contractors. Tasks traditionally performed at the start or the end of the production line are increasingly moving away from the main plant to be performed by manufacturing subcontractors or distribution centers. Preambly and sequencing of parts for on-line production chains are activities increasingly outsourced to specialist logistics providers. Customization of products, which can range from labeling or repackaging of goods to reconfiguration of

items, is one of the fastest growing areas of logistics outsourcing.

2.1.2. Focused Manufacturing

Manufacturers have been concentrating production capacity in fewer locations, replacing the traditional system of nationally based production with “focused manufacturing.” Instead of a factory manufacturing a broad range of products for a local market, the entire production of a particular product for a continent or, in some cases the world market, is focused at a single location. While this has enabled companies to maximize economies of scale in the production operation, it has often made their logistical system more transport-intensive and transport-dependent.

2.1.3. Expanded Logistics Reach

Companies have steadily expanded the geographical scale, or “logistics reach” of their sourcing and distribution operations. Extension of this reach on a global scale has been one of the dominant trends in international business and logistics over the past 30 years. The emergence of a new generation of high-value manufactured products, particularly in the electronics industry, and a general reduction in the density of consumer products (that is, lesser but better known brands) has contributed to an increase in logistics reach. Hewlett-Packard, for example, estimates that the various parts in a computer workstation in a New York office were moved a total of 96,000 kilometers from their points of production in places such as Singapore, Japan, France, and the Western United States.

2.1.4. Increased Sourcing Alternatives

Producers in one area of the world are increasingly competing with producers in other areas for the same international markets. This is true across the spectrum of primary and intermediate products. Examples of sourcing alternatives are virtually endless. Wholesalers of fruit and juice in Europe can source from Latin America, Southeast Asia, Australasia, Eastern Mediterranean, Southeast United States, and

Africa. Textile manufacturers can source in China, Southeast Asia, the Indian subcontinent, Africa, Eastern Europe, and a wide variety of other locations. The sourcing decision ultimately is determined by total delivered cost and quality, which in turn can be greatly dependent on the logistics cost to acquire primary and intermediate products and deliver the finished products to market.

2.1.5. Impact of Globalization on Ports

While ports have always been important nodes in the logistics system, globalization of production has sharpened the need for ports to be value adders, not value subtractors, in the supply chain, and has given ports a unique opportunity to become value-adding entities. A port is the interface between intercontinental transport and a place in the hinterland being considered for production, assembly, or final distribution. Port capability and efficiency can greatly influence the decision for locating a plant or distribution center, and often determine whether a local producer can compete globally or regionally with other producers. The challenge is for ports to relate to the needs of their customers and assist them in improving their competitive positions by providing low-cost, efficient port services.

2.2. Changing Technology

Major technology changes are taking place in the ocean shipping sector that affect requirements for port infrastructure and services. The most obvious is the increasing containerization of global trade, a trend that is widely expected to continue into the future. Containerization of seaborne trade is some 50 years old, and deep-sea containerization some 40 years old. Yet it has dramatically changed requirements for cargo handling and port facilities, raised the financial stakes of investing in these facilities, and radically affected manpower and labor skills required to handle cargo, creating serious labor redundancy issues and retraining needs in many ports. In addition, the ocean transport industry is employing increasingly sophisticated information technology (IT) to manage logistics; and ports, if they

Box 8: Evolution of Containerized Shipping

Container shipping got its start in April 1956 when the tanker *Ideal X* owned by SeaLand (then known as Pan Atlantic Steamship) made its initial voyage between New York and Houston carrying 58 trailers on deck. The trailers were detached from their chassis and lifted aboard the ship with a dock-side gantry crane. This initial voyage was rapidly followed by plans to convert six dry cargo ships to full containerships fitted with onboard cranes. The first of these began operating in October 1957, and had capacity to carry 226 35-foot containers, equivalent to about 480 TEU. By 1963, the company was employing converted tankers between the U.S. East and West Coasts that were able to carry 476 containers (about 830 TEU). Meanwhile in 1960, Matson began containerized service between the West Coast and Hawaii, utilizing cargo ships able to carry 436 24-foot containers on deck (about 520 TEU). There was also an unsuccessful attempt by Grace Line in 1960 to introduce container service between the United States and Central and South America. International service using containerized vessels began in 1966 with the introduction of SeaLand's weekly container service between the U.S. East Coast and Europe.

First Purpose-Built Containerships

Ships built prior to 1969 were converted break-bulk ships or tankers. They generally had capacities in the 750–1,000 TEU range, a draft of about 9 meters, service speeds of 18–21 knots, and were fitted with shipboard cranes to handle containers. In 1969, the first ship specifically designed for containership service was built. This began a new generation of larger and faster containerships with capacities in the 1,000–1,500 TEU range and service speeds of 20–23 knots, and some ships could achieve speeds up to 27 knots. These ships were designed to use quay cranes rather than shipboard cranes. Removing the cranes both increased the cargo handling productivity and allowed more containers to be stowed on deck.

Containerships Reach Panamax Dimensions

Ships built in the early 1970s had capacities in the 1,000–2,500 TEU range, a draft up to 10 meters, and service speeds of 22–26 knots. Built during this period were the first panamax-size containerships, with dimensions just enough to pass through the locks of the Panama Canal, which limits ships to

289.5 meters length and 32.3 meters beam. This generation included a containership design that moved the technology goalpost on service speed. In 1972–73, SeaLand took delivery of eight 33-knot, panamax-size containerships capable of carrying 1,900 TEU. To make this speed, the ships had 120,000 bhp (brake horsepower) installed power. They turned out to be an economic failure when fuel prices went skyward as a result of the Organization of Petroleum Exporting Countries (OPEC) action in the mid 1970s. To date, the speed of these SeaLand ships has not been exceeded. The late 1970s and early 1980s saw further increase in containership size, with capacity moving into the 1,500–3,000 TEU range, including a number of panamax-designed ships. However, the abrupt rise in fuel cost brought about a slower generation of containerships during this period. The design emphasis was on achieving fuel efficiency, and service speed generally fell into the 20–24 knot range and drafts deepened to 10.5 meters.

During the second half of the 1980s, the capacity of panamax containerships grew to more than 4,000 TEU through design improvements. Included among the panamax ships built during this period were 12 4,400 TEU “econoships” designed by U.S. lines to operate on a round-the-world service. These were relatively slow (19 knots) ships with a small power plant designed to maximize fuel efficiency. While these ships were too slow for the intended service, they initiated the concept of a round-the-world service that Evergreen and other carriers followed later.

Postpanamax Ships Enter Service

Even more important during the second half of the 1990s was the introduction of the first postpanamax ships by American President Lines (APL), which ordered five ships at 273 meters long, 39 meters wide, with 4,400 TEU capacity for use in transpacific service. These were the first containerships unable to transit the Panama Canal and paved the way for increasingly larger postpanamax ships over the next decades. According to APL, the principal advantage of the postpanamax ship is virtually unlimited container capacity. Other advantages include the fact that a large panamax ship must carry as much as 12,500 tons of water ballast, whereas an equivalent size, but wider,

Box 8: Evolution of Containerized Shipping (Continued)

postpanamax ship requires little or no ballast and consumes less fuel. Also, for the same TEU capacity, the postpanamax ship is 5 percent cheaper to build because length is the most expensive dimension.

In the 1990s, postpanamax containerships were ordered by most of the major line haul carriers, including Maersk, OOCL, Hanjin, Evergreen, Hyundai, COSCO, NYK, MOL, and NOL. The most notable orders were those of Maersk and P&O, who took delivery of a string

of ships with a capacity of more than 6,000 TEU, designed for a service speed of 25 knots at maximum draft of 13.5 meters. In addition, through design changes, the capacity of panamax-sized containerships increased to 4,800 TEU. In the late 1990s, Hapag-Lloyd ordered seven 4,800-TEU containerships with a service speed of 25 knots and draft of 13.5 meters, yet designed within the size limits of the Panama Canal.

Source: Ecorys (2005).

are to remain competitive, must be key players in future IT logistics networks.

2.2.1. Containerization of World Trade

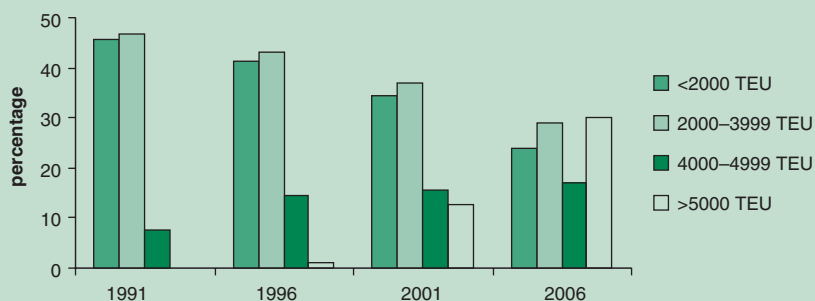
More than 60 percent of the world general cargo trade moved by sea is carried in containers. On trades between highly industrialized countries the percentage approaches more than 90 percent (of the containerizable cargo). This is a remarkable market penetration for a technology that dates only from the mid 1950s, when the first converted ship carrying 58 containers made its initial voyage between New York and Houston. Since then there has been a continual increase in both number and average size of containerships (see Box 8 and 9).

In the beginning of 2005, the world fleet of cellular containerships consisted of 3,362 units with a capacity of 8.3 million TEU. Given the

then existing orderbook, the fleet will increase to 4,252 units with a capacity of 10.7 million TEU in 2008. With a resulting rate of 10.7 percent more than the period 1998–2008, the growth is higher than the 9.9 percent as experienced over the previous decade (see Box 10 and 11).

The growth was accompanied with a large increase in the size of ships. The share of ships in excess of 5,000 TEU increased from 1 percent in 1996 to 30 percent in 2006. The share of postpanamax vessels (ships with a beam larger than 32.2 meters) will have increased over the same period from 15.4 percent to 47.1 percent.

In September 2005, the total fleet on order reached 4.3 million TEU. Maersk Line tops the list with a share in the total of 11 percent in terms of TEU and 8 percent in terms of number of vessels. The 10 largest operators together have a share of 48 percent and 31 percent respectively.

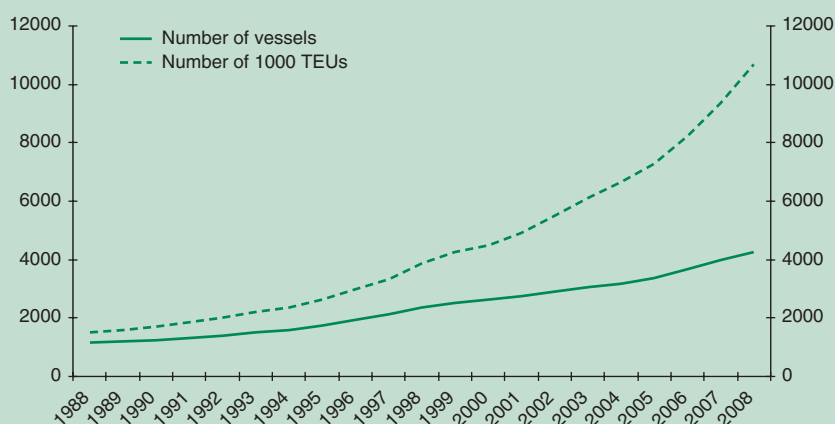
Box 9: Development of Container Vessel Sizes as a Percentage of the Global Fleet

Source: Author.

Box 10: Ships on Order as of September 2005

Company	Rank	On Order TEU	On Order Ships	% of Total
Maersk Line	1	463.961	91	8
Mediterranean Shipping Co. SA	2	293.824	39	3
P&O Nedlloyd Ltd.	3	179.483	29	2
CMA CGM SA	4	356.350	66	6
Evergreen Marine Corporation (Taiwan) Ltd.	5	36.616	6	1
APL Ltd.	6	111.106	30	3
China Shipping Container Lines Co. Ltd.	7	209.413	34	3
COSCO Container Lines Ltd.	8	223.285	27	2
Hanjin Shipping Co. Ltd.	9	74.365	11	1
NYK Line	10	137.300	23	2
World Fleet		4,348,664	1,161	100

Source: Containerisation International.

Box 11: Evolution of Cellular Fleet

Note: Figures are given at 1 January each year. Figures for 2006–2008 are derived from orderbook of 1st 2005, assuming that no ships are deleted.

Source: BRS Alphaliner.

2.2.2. Future Containership Designs

There are no technical reasons preventing containerships from getting larger, so economic and strategic considerations will be the source of any barrier. There is a continuing increase in size of ships being ordered, but owners appear to be reluctant to take large steps. The 10,000 TEU mark has not yet been clearly passed, as

was expected some years ago. The largest ships are most effective on the Europe–Far East trade route for which seven to nine ships are needed to operate a weekly schedule. Investment in a service deploying 10,000-TEU ships would therefore require a capacity addition of 80,000 TEU; this is a large capacity addition. The increase in the size of the total market and the increase in the size of the global operators show

that there are parties that have a market allowing them to deploy bigger ships effectively.

2.2.3. Impact on Port Operations

The contrast between container and earlier breakbulk operations is startling. Most significantly, it has greatly reduced the ship's time in port and at berth. Containerization has dramatically reduced personnel requirements for cargo handling, raised berth productivity, and increased the capital intensity of port operations. Prior to containerization, about 200 men, working simultaneously in four gangs, were typically required to load and unload a large general cargo ship, a process that could take a week to 10 days in port. Containerships require only 50 to 60 men to load and unload cargo. Assuming a four gantry crane operation, a containership requires some 30 workers directly allocated to the vessel. This figure, moreover, depends on the type of terminal operation that is used, for example, more for straddle carrier operation, less for rubber-tire gantry (RTG). A typical general cargo berth can handle roughly 130,000 to 150,000 tons per year of cargo throughput. A modern container berth, equipped with four ship-to-shore gantry cranes, will handle 400,000 container moves annually (typically 600,000 million TEU). Assuming three-quarters of the containers are full and the average full load is 10 tons per TEU, the throughput of this berth is some 4 million tons annually. The largest postpanamax container crane with some 57 meters outreach will cost about \$8 million. Four to five of these cranes are needed to efficiently handle the largest postpanamax containerships (see Box 12). Overall, the infrastructure improvements and superstructure (cranes, straddle carriers or RTGs, tractors, and trailers, and so forth) needed for a modern two-berth container terminal will easily cost \$150 million. In contrast, a typical 3–6 ton quay crane used for general cargo handling in the 1950s would have cost, at today's prices, about \$1 million.

2.2.4. Need for Container Port Productivity Improvements

A study concludes that “the economics of containership operation are critically dependent on

Box 12: Future Containerships Require Increasingly Larger Cranes

Panamax—A typical panamax containership is about 290 meters long and has 13 meters draft. The ship is limited in width to 32.2 meters to allow passage through the Panama Canal locks. This width limitation constrains the number of rows to 13 containers. Up to 4,800 TEU can be carried in these vessels. The outreach of the crane must be capable of spanning 13 rows of containers.

Postpanamax—These ships are too wide to transit the Panama Canal. The first postpanamax ships delivered in the late 1980s carried 4,400 TEU. More recent ships entering service for Maersk and P&O were designed to carry 6,000–7,000 TEU. The vessels are almost 43 meters wide and are capable of handling 16 to 17 rows of containers on deck. Draft is 13.5 to 14 meters. The container crane must be capable of spanning 17 rows of containers. Since the containers are stacked up to six high on deck, and an increasing percentage of containers are so-called High Cubes (9 feet, 6 inches high), the air draught of container gantry cranes had to increase considerably as well.

Recent designs are able to carry more than 9,000 TEU, and it is widely expected that orders for 10,000-TEU vessels will be placed in the near future. The width of these vessels will be 44–46 meters and the draft will range from 14–15 meters. They will accommodate 18 to maybe 23 rows of containers on deck. The crane required to handle the containers on this vessel will be a massive structure capable of spanning 18 to 23 rows and higher stacks.

Future Designs

Gustav de Monie launched his concept of the mega containerships. The concept design is a containership able to handle 15,000 TEU. The massive vessels would be between 380–450 meters long, 70–78 meters wide, and have a draft of about 14 meters. Nico Wijnolst launched his design of the Malacca-Max design: 18,000 TEU, 400 meters long, 60 meters wide, and a draft of 21 meters (maximum draft to pass the Strait of Malacca). To handle the containers, it will likely be necessary to use a different type of container crane and special berthing basin for the vessel.

Source: Author.

port productivity . . . (and) continued general worldwide improvements in port productivity will so fundamentally alter the container shipping cost environment that, in the absence of any technological constraint, ship size optimums for all routes will continue to increase as they have done in the past” (see Box 13 and 14). A typical container terminal today has a static capacity of 40–200 TEU per hectare (depending on the yard stacking system in use), crane productivity of 25–30 gross moves per gantry-crane hour, average container dwell time of five to six days, and truck turnaround time of one hour. But future terminal requirements will be considerably more demanding. To accommodate the mega containerships coming into service, new terminals will require a static capacity density of 400–800 TEU per hectare, crane productivity of 200 moves per ship-hour at berth, maximum three days average dwell time, and truck turnaround of less than 30 minutes. Water depth at the future terminal will need to be at least 15 to 16 meters and increasingly larger cranes will be required to accommodate ships with a deck stack of up to 23 rows across.

2.2.5. Growing Role of Information Technology

Equally important in the future is the need for ports to expand the use of IT to support port user requirements, particularly relating to containerized traffic, although not exclusively. IT is increasingly employed throughout the ocean transport sector and has revolutionized the way intermodal traffic is handled. IT systems electronically link port administration, terminal operators, truckers, customs, freight forwarders, carriers, ship agents, and other members of the port community (see Box 15). The technology provides port users with real time data on the status of cargo, paperwork, and availability of port facilities, and enables ships and terminals to be part of an integrated office infrastructure. IT reduces time for delivering cargo; provides more accurate transfer and recording of information; reduces manpower for port operation paperwork; offers advance information on ship, barge, truck, wagon, container, and cargo movements;

and improves planning and coordination of berths, handling equipment, and storage facilities (see Box 16). Ports unable or unwilling to keep pace with information technology will be left behind in the competitive ocean transport market.

2.2.6. Port Requirements for Large Cruise Ships

The cruise industry is producing requirements for more ports and enhanced facilities in existing ports to accommodate the growing number and size of cruise ships. During the decade before the attack of September 11, 2001, the industry had tremendous growth. Particularly significant was the growth in number of mega cruise ships, that is those more than 70,000 and up to 150,000 gross tons that carry 2,000–3,000 passengers or more. Since 2004, the market has recovered, new ships are being ordered and the share of mega cruise ships is increasing again.

With the growth in numbers of ships, the cruise lines need more ports to vary their itinerary. In selecting a cruise port, cruise ship operators look at:

- 1) Location of the port and cruising distance relative to other ports on a particular itinerary.
- 2) “Marquee” value and activities available for passengers.
- 3) Visitor safety and comfort.
- 4) Existence of head taxes.
- 5) Physical capabilities of the port to accept cruise ships (see Box 17).

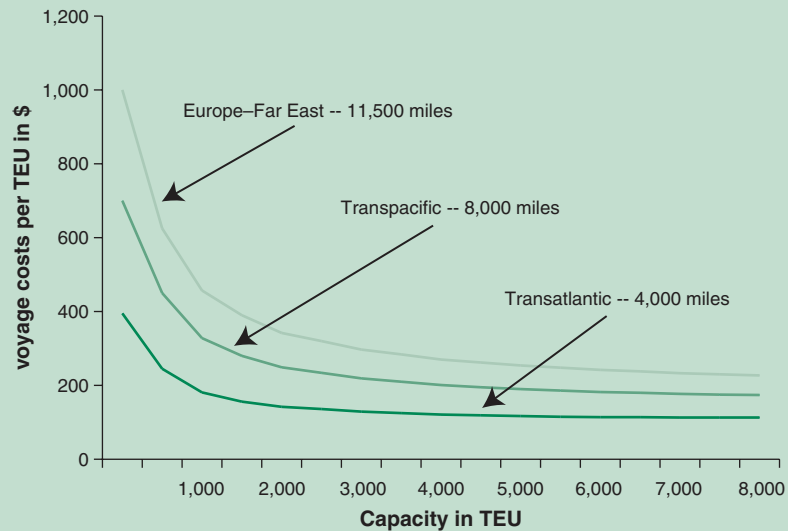
Ports wanting to be cruise destinations must develop a strategy jointly with tourism officials to maintain tourism product quality and maximize visitor spending. For ports able to satisfy cruise operator needs, the operator may be willing to establish long-term agreements to bring its ships to the port on a regular basis for periods of up to 25 years. Such an agreement could be the basis for arranging financing by a developer to acquire the physical facilities and services in the port needed to accommodate cruise ships. The

Box 13: Impact on Port Productivity of Unit Voyage Cost of Large Containerships

A study of economies of scale in large containerships gives an indication of the unit cost benefits that can be obtained by the use of increasingly larger containerships—and the benefits that can be achieved by increased cargo handling productivity that reduces port time. The study prepared by Cullinane and Khanna and published in the *Journal of Transport Economics and Policy* models the impact of using containerships with nominal capacity to 8,000 TEU, assuming current cargo handling rates and rates that would be 100 per cent higher.

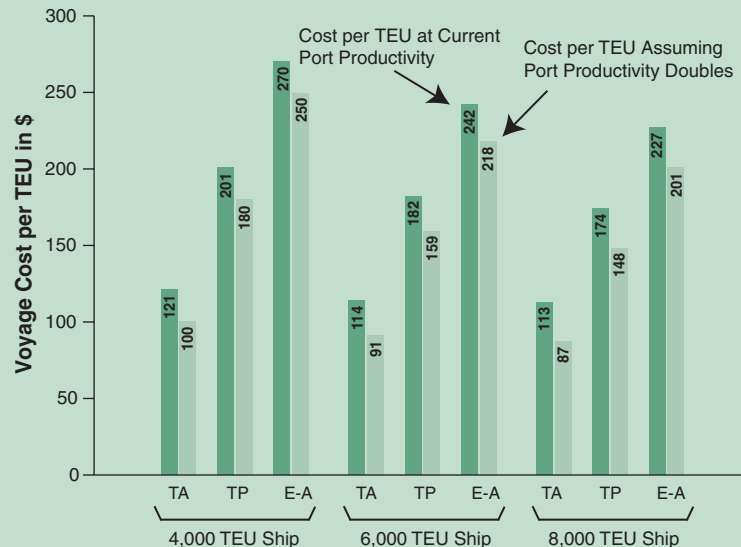
Declining Unit Cost with Larger Ships

Box Figure 13.1 is from the Cullinane and Khanna study and shows the relationship between voyage cost per TEU, ship capacity, and route distance on three major line haul routes. Unit cost declines as ship capacity increases. In deriving these unit costs, the authors assume that port time for various size ships reflects current cargo handling productivity, which in turn is a function of the number of cranes assigned to a ship and the handling rate per crane. Based on a questionnaire by the authors, current practice is to typically employ one to two cranes on ships under 1,000 TEU capacity, three to four cranes on ships 3,000–4,000 TEU capacity, and five cranes on ships of 6,000 TEU capacity. Crane productivity under current practices is assumed to average about 22 moves per hour. On this basis, five cranes working a 6,000 TEU containership can load and discharge 2,000 20-foot boxes and 2,000 40-foot boxes at a rate of 110 moves per hour, and the ship can be fully discharged and loaded in 72 hours.



Total voyage cost per TEU as a Function of Ship Capacity and Route Distance (assuming current cargo handling productivity)

Source: K. Cullinane and M. Khanna, "Economies of Scale in Large Containerships," *Journal of Transport* Vol. 33, p. 201.



Impact of Increasing Port Productivity on Voyage Cost Per TEU

Source: K. Cullinane and M. Khanna, "Economies of Scale in Large Containerships," *Journal of Transport* Vol. 33, p. 202.

(Box continues on the following page.)

Box 13: Impact on Port Productivity of Unit Voyage Cost of Large Containerships (Continued)

Increasing Port Productivity

The authors then examine the sensitivity of reducing port time through increased cargo handling rates. They show that a cargo handling rate double that of the current rate will significantly reduce the unit cost, as the ship will be able to carry more containers in a given time period. For example, doubling the cargo handling rate will reduce the unit cost of a 6,000 TEU ship from \$114 to \$91 per TEU on a transatlantic voyage. The unit cost of a similar ship on a transpacific voyage would drop from \$182 to \$159 per TEU, and on a Europe–Far East voyage from \$242 to \$218.

Box 14: Ceres Paragon Terminal in Amsterdam, the Netherlands

The Ceres Paragon Terminal in Amsterdam is the first container terminal in the world capable of loading and unloading containers from both sides of the ship, and has a capacity to handle some 600,000 containers annually. In 2002, the port became operational and remained quiet (106 million investment).

It proved difficult to start a new terminal located behind a lock, lacking tested multi-modal hinterland connections with rail and inland waterway. In 2005, things appeared to change; NYK bought a 50 percent share of the terminal and was planning to have two strings of the Grand Alliance Europe–Far East trade route calling at the terminal.

Source: Author.

key issue here remains what guarantees a port has if the cruise operator stops port calls before the end of the agreed-on period.

2.2.7. Other Technology Affecting Port Services

Introducing podded drive propulsion systems can potentially reduce requirements for harbor tug services in port. These high power azimuthing systems significantly improve ship

maneuverability, possibly eliminating the need for tug assist services for berthing. While podded drive to date has largely been limited to cruise ship and ferry propulsion, there are indications that use of the technology may spread to other types of ships, particularly where maneuverability is especially important (see Box 18).

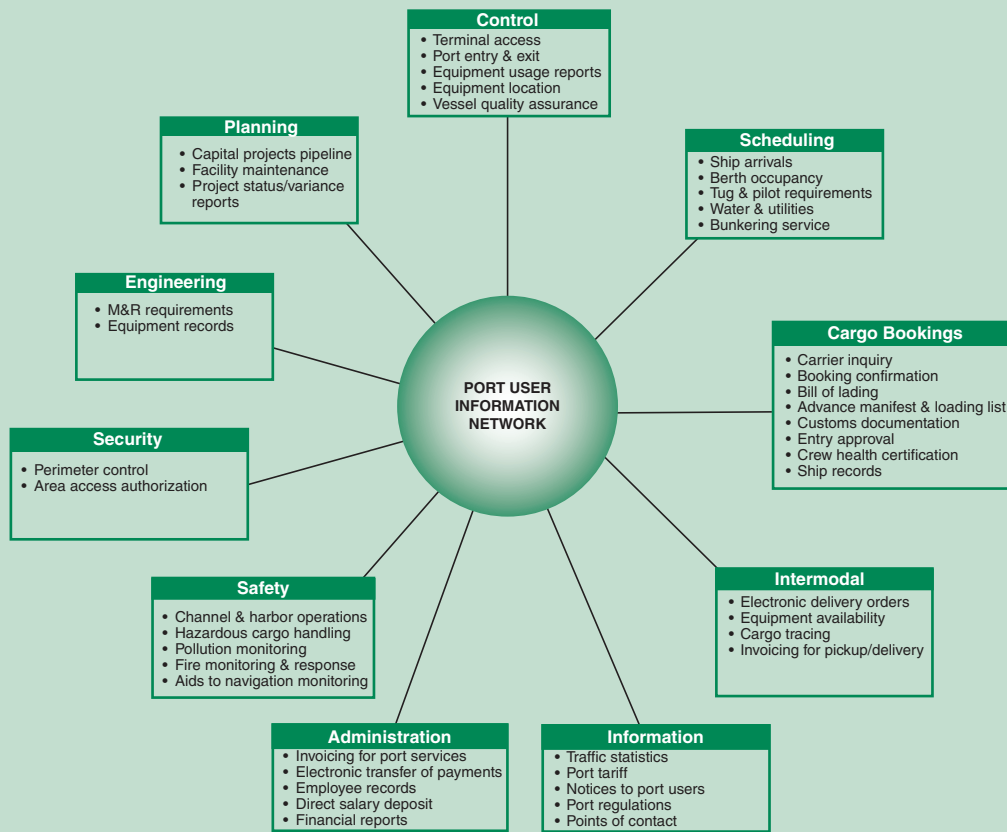
Another new technology, self-unloading bulk carriers, is popular on the U.S. Great Lakes, and their use is spreading to other trades. These bulk carriers have the capability to discharge without the use of shore-based equipment, reducing the need for special facilities to unload bulk cargo.

2.3. Shifting Bargaining Power

Bargaining power results from the relative strength of the parties involved in a negotiation. The stronger the bargaining power, the more likely the party will get the greater gain in a transaction. In the port sector, the major parties to a negotiation are port users and port service providers. Current events are reshaping the relative strength of each of these parties; on the one hand, consolidation occurring among ocean carriers is producing increasingly stronger, more formidable customers that port authorities, terminal operators, and other port service providers must contend with in pricing and service negotiations. On the other hand, a relatively small number of companies have been acquiring terminals in ports in all areas of the world, creating terminal operators with global coverage that have the financial depth and negotiating strength to withstand demands of terminal users. Adding to this situation is the growing role of global logistics service providers who have considerable strength in dealing with both shipping companies and terminal operators. Finally, there is the unmistakable trend of carriers wanting to own and manage their own port and inland terminals. These changes are creating a shifting playing field for negotiations among port users and port service providers.

2.3.1. Consolidation among Ocean Carriers

Over the past decade there has been substantial consolidation in the ocean shipping sector

Box 15: Port User Information Network

Source: Author.

(see Box 19). While this has been occurring in all sectors of the industry, it is most apparent in container shipping where it is estimated that in 2005, 25 carriers out of more than 400 now control more than 80 percent of container fleet capacity. This sector has witnessed a significant number of major mergers and acquisitions over the past 10 years, a trend that appears to have room to run.

The consolidation movement in the container shipping sector began with slot sharing arrangements, where carriers purchased slots in other carriers' ships to provide service flexibility and more extensive geographical coverage. This expanded into multitrade alliances among carriers that focused on achieving efficiencies and better service by sharing vessels, utilizing common terminals, joint feeder service, and

joint purchase of containers. The current activity in mergers and acquisitions is a third step in this pattern of cooperation. It simply takes the alliance concept to its ultimate stage—full ownership and control under one corporate umbrella.

The three largest container carriers illustrate the patterns of growth in the container shipping sector. Maersk Line, the largest player in container shipping with more than 500 ships and 1.5 million TEU capacity at mid 2005 with the completion of the Royal P&O Nedlloyd acquisition, illustrates a progression from global alliance to single corporate ownership. Until 1990, both Maersk and SeaLand operated as separate entities, each a major player in its own right. In 1991, they formed a global alliance to improve service and generate operating efficiencies.

Box 16: Felixstowe Cargo Processing System (FCPS)

The Port of Felixstowe handled container throughput of more than 2.5 million TEU in 2003 and has installed a sophisticated information technology system to electronically link members of the port community. The system, managed by Maritime Cargo Processing, covers more than 70 percent of containers passing through British ports, supporting 630 corporate organizations with more than 2,500 users in more than 18 geographical locations within the United Kingdom. It is an interactive Microsoft-based system and over the past year handled 32.5 million transactions and 22.5 million electronic data interchange (EDI) messages.

The system electronically provides:

- Manifests and associated amendments.
- Customs release notes.
- Bonded removal documents.
- Ship's out-turn and discharge reports and amendments.
- Local transshipment documentation.
- Lines' commercial release.
- Acceptance of rent and storage charges.
- Delivery instructions to transport operators (road and rail).
- Export delivery advice.
- Export arrivals.
- Export loadlist.
- Loading reports.
- Export customs declarations.

- Customs examination and sealing requirements.
- Port health, customs preventive and other government departments' activities.
- Requests to out-turn in sheds and warehouses.
- Shed and warehouse out-turn reports and amendments.
- Customs declarations for exports.
- Ship planning notifications and amendments.
- Hazardous goods reporting.

Port operator benefits include:

- Information for preplanning physical operations.
- Single gateway via FCPS to port users' systems.
- Automatic writing off of manifest and customs entries.
- Paperless releasing of import cargo.
- Paperless notification of customs status.
- Paperless transshipment notification and approval.
- Paperless export load lists.
- Enhanced facilities for late runners.
- EDI Dangerous Goods notifications.
- EDI status messages to customers.
- Local messaging facility.
- Full audit facilities.

According to the system operator, plans call for expanding FCPS to a global Internet-based real time system within five years.

Source: Author.

Continuing the progression, in mid 1999 Maersk purchased the ocean transport assets of SeaLand for \$800 million.

The combined Maersk Line company is almost than twice the size of its nearest competitor, Mediterranean Shipping Company (MSC), a Geneva-based company that traces its origins to 1970, and more than three times the size of Evergreen, a Taiwan-based company that traces its origins to 1968. MSC has more than 290 ships with a capacity of close to 900,000 TEU, and showed a spectacular growth through acquisition of second-hand, new, and chartered tonnage rather than through acquisition or merger. Evergreen has more than 190 ships

with a total capacity of 5,300,000 TEU, and acquired most of its capacity through internal expansion (although the company did acquire Lloyd Triestino).

A report by Drewry Shipping Consultants Ltd. (2006) includes a comprehensive analysis of the capacities, roles, and market shares of the global terminal operators. A group of more than 20 companies is analyzed, including global stevedores, global carriers primarily involved in liner shipping operations, and global hybrids (business units under global carriers). In 2005, these companies together controlled 178 million TEU or 44.5 percent of the world's estimated container port throughput of approximately 400

Box 17: Physical Requirements to Accept Cruise Ships

The handling of large cruise ships with large numbers of passengers in a very short turnaround time is a huge logistics problem. The newer cruise ships entering the market today are vessels with capacities of 2,000–3,500 passengers. Cruise ships spend an average of 7–9 hours in port, during which passengers debark and embark and various services are provided to the vessel. The combination of large ships and demand for quick turnaround places significant strain on port facilities and services. According to Gee & Jenson, a designer of cruise facilities, to accept modern cruise ships a port must be able to provide:

- A minimum 500-foot entrance channel width; 34-foot navigational depth; 32-foot berth depth; 500-foot service apron length; 50-foot apron width; 50–100-ton design load range for bollards, cleats, and dolphins; and 1,300–1,500-foot minimum turning basin diameter.

- Protected passageway between ship and terminal capable of embarking all passengers within 2–3 hours, disembarking all passengers within 1–2 hours, and ability to stay connected to the cruise ship over the full tidal range.
- Staging area for three to five 40-foot containers; adequate bus and taxi queues to support passenger embarkation and debarkation; facilities to collect and dispose of waste; potable water; and other services to support the ship in port.

Cruise ships are a \$300–\$500 million capital investment. Their successful operation is highly dependent on maintaining a tight schedule with no disruptions. A standard in the industry is that cruise ships can never be denied or have access delayed to and from a berth. This is a very real challenge that ports wanting to be cruise ship destinations must be able to meet.

Source: Author.

Box 18: Podded Electric Drive Impact on Requirements for Ship Assist in Port

Podded electric drive technology uses a sealed “pod” encapsulating an electric motor directly coupled to a propeller. Electricity from the ship’s power plant to the fully submerged watertight pod is provided via cable. The pod is steerable and provides side as well as fore and aft thrust. Use of the pod eliminates the requirement for a rudder, shaft, and stern thruster and frees up space inside the ship that would be otherwise occupied by a conventional propulsion engine.

Currently, the technology is largely limited to cruise ship and large ferry propulsion. However, a survey of shipowners and shipbuilders indicated that podded electric drive has potential use in a variety of ship types.

Generally, the results indicate that the technology has greatest possibility on ships where maneuverability is particularly important, space and weight savings have substantial value, or current propulsion systems interfere with efficient layout.

Because the ship is more maneuverable, tug assist in harbors may not be necessary, which could affect future requirements for harbor tug services. In addition, the sideways thrust of podded drive could affect the underwater structure of piers during vessel docking and undocking, and accepting vessels with this propulsion device may require some beefing up of the berth.

Source: Author.

million TEU (see Box 20 and 21). The remainder is practically equally divided over state-owned and private operators.

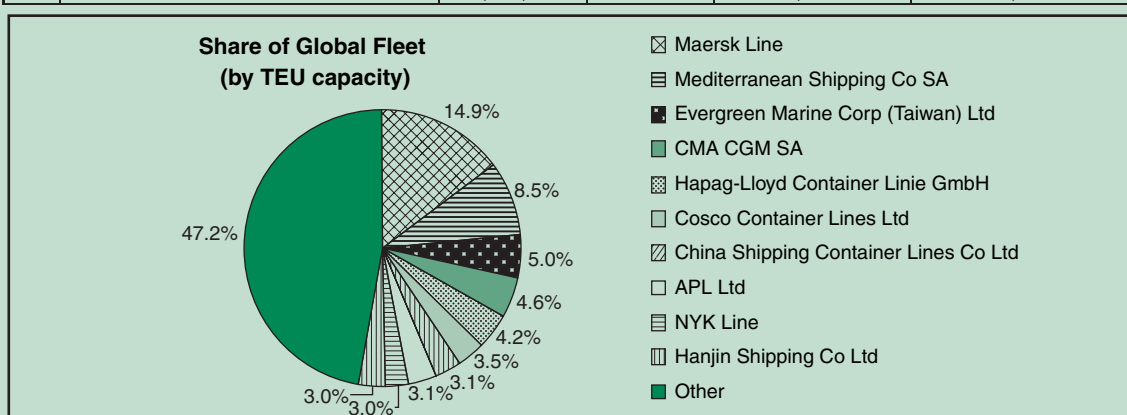
The league table is led by Hutchison Port Holdings (HPH) controlling 33.2 million TEU, 8.3 percent of the world’s port throughput capacity. In 2005, the five largest operators, HPH, PSA, APM Terminals, P&O Ports and DP World, controlled 112.7 million TEU, that

is, 28 percent of the world’s port throughput. When considering the top 10 operators, these figures become 168 million TEU and 36 percent respectively. The top 10 global terminal operators are discussed in more detail below.

Hutchison Port Holdings launched its global expansion in 1991, using the experience and capabilities it developed operating container

Box 19: Top 10 Container Carriers as of June 2006

Rank	Carrier	Current TEU Capacity	% of Global Fleet	Current Operating Vessels	Vessels Under Construction/Contract
1	Maersk Line	1,566,352	14.9	519	102
2	Mediterranean Shipping Co SA	892,548	8.5	297	24
3	Evergreen Marine Corp (Taiwan) Ltd	530,172	5.0	193	24
4	CMA CGM SA	486,453	4.6	189	56
5	Hapag-Lloyd Container Linie GmbH	437,954	4.2	136	10
6	Cosco Container Lines Ltd	369,531	3.5	128	20
7	China Shipping Container Lines Co Ltd	328,245	3.1	95	19
8	APL Ltd	325,919	3.1	104	27
9	NYK Line	315,865	3.0	117	25
10	Hanjin Shipping Co Ltd	313,698	3.0	78	17
	Other	4,980,735	47.2		
	Total Global Fleet	10,547,472		8,024	1,108



Source: Author.

terminals in Hong Kong. Early in 2004, it operated container terminals in more than 30 ports, with a reported throughput of 33.2 million TEU in 2005 (see Box 22).

PSA Corporation embarked on a similar major effort to enlarge its global presence in container terminal operations in the mid 1990s, drawing on its experience in Singapore. The company reported a throughput of 28.7 million TEU in 2003 and 32.4 million TEU in 2005, of which more than 10 million were realized at its terminal operations outside Singapore. These terminals were also the main driver for PSA's growth, as its home terminal continues to feel the strong competitive pressure from the cheaper Malaysian ports.

APM Terminals is still strongly linked to Maersk Line, especially in the provision of

transshipment hubs such as Tanjung Pelepas, Algeciras, and Salalah, which accounted for 35 percent of its total throughput in 2003. The company, however, has shown a commitment toward serving the common user market, and Maersk Line's share of the company's total volume has declined from 75 percent in 2002 to less than 70 percent in 2004. APM Terminals has a strong presence on all U.S. coasts, a heritage from the SeaLand acquisition. In 2005, its throughput was 24.1 million TEU, a share of 6.0 of global throughput. Projections show a strong growth of nearly 12 percent per annum on average in capacity for the rest of the decade.

P&O Ports' throughput amounted to 13.1 million TEU in 2005, pushing the United Kingdom-based company's global share from to 3.3 percent. This growth was realized by a combination of new

Box 20: Worldwide Container Traffic

	World Port Throughput		Transshipment		Container Traffic	
	Mil TEU	Annual Growth	Mil TEU	Share (%)	Mil TEU	Growth (%)
1990	879		16	18.2%	287	
1995	1,451	10.5%	323	22.3%	46	9.9%
2000	2,356	10.2%	622	26.4%	683	8.2%
2003	317	10.4%	865	27.3%	909	10.0%

Regional Share of Transshipment Container Traffic

		1990 (%)	1995 (%)	2000 (%)	2003 (%)
North America		6.5	7.3	7.5	7.5
West Europe				27.2	28.9
<i>North Europe</i>		21.3	24.7	22.7	23.8
<i>South Europe</i>		25.5	28.5	34.5	36.5
Far East		19.0	24.2	25.1	25.6
South East Asia		40.3	44.8	47.6	47.0
Middle East		27.3	33.0	41.4	43.8
Latin America				22.7	26.2
<i>Caribbean/Central America</i>		6.9	16.0	32.9	40.1
<i>South America</i>		0.0	2.4	9.9	9.9
Oceania		1.9	2.4	2.9	3.7
South Asia		23.1	21.9	21.6	20.7
Africa		8.4	26.4	22.7	21.9
Eastern Europe		0.0	0.0	0.0	0.0
World		18.5	22.3	26.4	27.3

Source: Various Drewry Shipping Consultants Reports.

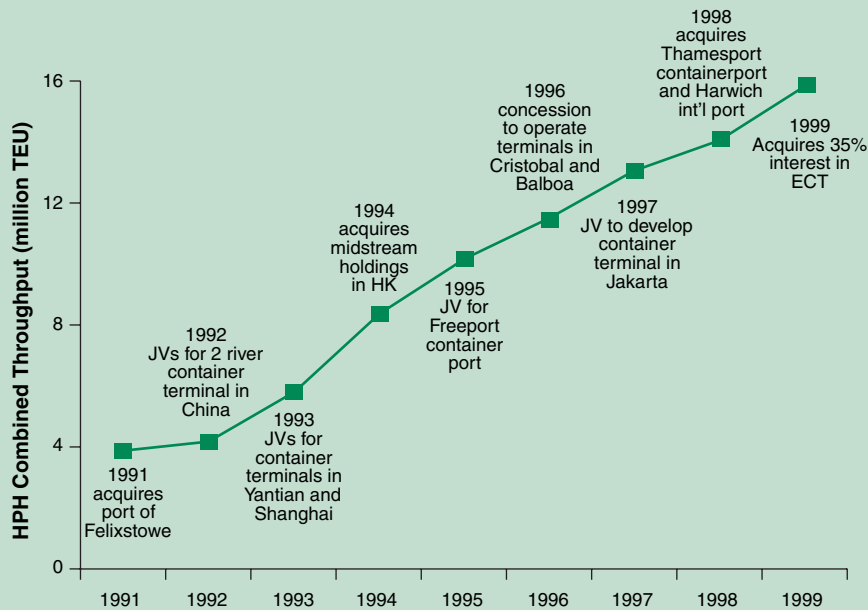
Source: Author.

Box 21: Global Terminal Operators 2005 Throughput League Table

Ranking	Operator	Million TEU	(%) Share
1	Hutchison Port Holdings (HPH)	33.2	8.3
2	PSA - Singapore Port Authority	32.4	8.1
3	APM Terminals	24.1	6.0
4	P&O Ports	21.9	3.3
5	DP World	13.3	2.5
6	Evergreen	11.5	1.7
7	Eurogate	11.4	1.6
8	Cosco	8.1	1.5
9	SSA Marine	6.7	1.4
10	HHLA	5.7	1.3

Source: Drewry Shipping Consultants, Annual Review of Global Terminal Operators, 2006

Box 22: Key Milestones of Hutchison Port Holdings in the 1990s



Source: Hutchison Port Holdings Web site.

developments that became operational and autonomous growth at existing facilities.

Dubai Ports World (DPW) is a relatively new player in the international global terminal race, but has quite an aggressive growth and acquisition strategy. In 2005, its combined throughput was 9.9 million TEU compared to 6.5 million TEU for 2003. Much of this throughput was realized at its home base terminals in Jebel Ali and Port Rashid. From its successes at its home base, DPA (Dubai Port Authority), through its international vehicle DPW (formerly Dubai Ports International), started its expansion in and around the Middle East with terminals in Jeddah and Djibouti. It then had some successes in India (Visakhapatnam, Cochin, and Gangavaram), and in December 2004 took over CSX World Terminals (CSXWT), causing its total capacity to rise to 14.6 million TEU. DPW subsequently purchased P&O Ports in 2006 in a bidding war with PSA. The combined volumes of DPW and P&O Ports puts DPA/DPW in hot pursuit of the top three global terminal operators.

Evergreen's terminal throughput was up 6.6 million TEU in 2005. The Taiwanese company's

strategy originally aimed at operating terminals in support of its liner operations, but increasingly the company is looking to attract third-party business.

Eurogate, originating from Bremen, has the narrowest geographic spread of the top 10 container terminal operators because it is only active in Europe, mainly in Germany and Italy. Its throughput in 2005 was 6.3 million TEU with its global share decreasing slightly as international operators expand their portfolios. The company is looking for growth from intermodal transport and feeder traffic, the latter mainly through increased transshipment at its German hub ports and investment in terminal development in Russia.

China Ocean Shipping Company (COSCO) operates its terminals through COSCO Pacific and COSCO Container Lines Company, both wholly owned subsidiaries of COSCO. The company's shown enormous growth between 2002 and 2004. In 2005, there were even higher increases, up to 5.9 million TEU, mainly caused by the strong growth in the Chinese market, and to a lesser extent also by the COSCO's

willingness to enter into partnerships with other major global operators.

SSA Marine, based in Seattle, USA, traditionally has a strong presence on the U.S. East and West Coasts. It also has established a number of successful overseas operations, mainly in Central and South America, and more recently sought to invest in South East Asia. Its throughput in 2005 was 5.4 million TEU.

Mediterranean Shipping Company (MSC) has also significantly increased its presence in the terminal operation market with a strategy mainly focused on securing capacity for the carrier in home markets and transshipment facilities to support the carrier's network. MSC's terminal holdings are usually on a joint venture basis where the company is often partnering with local or regional operators and taking an equal or minority ownership.

With global container volumes still on the rise, partly due to the boost in Chinese volumes, virtually all global port operators show impressive growth rates. Moreover, many of them realized a great deal of their expansion by developing new terminals in China, and there is more capacity being planned to become available in the coming years. Global terminal operators that spawned from stevedores (as opposed to those owned by major container carriers) saw throughput at their homeports becoming increasingly less important as their overseas activities grew.

The top 25 of global terminal operators remains relatively volatile, with more consolidation through merger and acquisition yet to be expected. The larger players are in a race to develop new capacity and buy existing capacity, where the smaller players are prey. APM Terminals is expected to close in on PSA during the coming years. DPA/DPW, with its recent acquisition of CSXWT and P&O Ports, is now also knocking at the entrance of the top three with a very aggressive expansion strategy. COSCO showed quite an impressive growth, largely due to the Chinese market. Outside the top 10, MSC has steamed up the ranks moving it to 14th place in 2005. This growth has mainly been achieved by forming partnerships at its

key Northern European ports to ensure long-term access to scarce capacity.

2.3.2. Emergence of Global Logistics Service Providers

Contributing to the realignment in bargaining power is the emergence of companies that offer full service logistics solutions to major shippers. These logistics service providers have substantial strength in dealing with shipping companies, terminal operators, and other port service suppliers, adding to the growing complexity in achieving a balance in port service negotiations. They make decisions that affect all parties involved in the supply chain, including port service providers. Logistics service providers manage the combined logistics requirements of the many large shippers they represent, giving them considerable strength in dealing with shipping companies, terminal operators, and others in the logistics channel. In response to market demand, some substantial players have targeted this activity, including Federal Express, which recently announced that it would enter the global logistics market for ocean freight.

These developments are changing the way port services are bought and sold. Alliances and consolidation among carriers result in the carriers having more business volume on the negotiating table, placing ports and terminal operators in an increasingly awkward position when it comes to negotiating strength. In some situations, the stakes are so high that the port or terminal can hardly afford to lose the carrier's business. This can often result in the port having to make concessions to retain the traffic. For example, the Grand Alliance notified the Port of Rotterdam that for operational reasons it was temporarily switching one of its five Europe-Asia services to the rival Port of Antwerp. This service represented 125,000 TEU per year to the port. It may only be coincidental, but a month after the announcement, the Rotterdam Municipal Council decided not to increase harbor dues for the year 2000, citing growing competition between ports in general and tariff developments in directly competing ports in particular.

At the same time, the emergence of global terminal operators can result in pricing schemes that may not always favor the small volume or regional carrier. These global terminal operators may offer incentives to high volume customers and there is at least the possibility that the terminal operator could cross-subsidize international operations as necessary to compete for a major carrier's business. Another possibility is that a truly global terminal operator could offer a package deal to a carrier that would provide a lower price or give concessions if the carrier uses only its terminals wherever available in the world.

2.4. Changing Distribution Patterns

As containerization has spread in ocean shipping, distribution patterns have increasingly evolved into a hub and spoke network. Facilities for devanning, clearing, staging, and storing containers are increasingly shifting inland, thereby becoming more decentralized. These developments are creating a hierarchy of ports and changing traditional port operations.

Ocean carriers have been increasingly using regional hubs for transshipment of containers. This is a worldwide trend that is accelerating as larger containerships come into service and the advantages of hub and spoke operations become more apparent. The hub and spoke concept is intended to maximize use of large containerships while providing market coverage to a maximum number of ports. This is accomplished via a network of regional and subregional hubs with onward service to outlying locations. Large line haul ships provide service between regional hubs. Progressively smaller ships are used to pick up and distribute containers within the region (see Box 23).

2.4.1. Becoming a Hub

The most important attribute carriers look for is the strategic location of the hub relative to the primary origins and final destinations of container traffic. Beyond location, other attributes include the ability to safely accept large ships, extent of terminal facilities, efficiency of container handling operations, availability of

frequent feeder services with an appropriate geographical coverage, and attractive cargo handling charges. Most carriers believe 15 meters depth is adequate to accept the largest containerships in service in the foreseeable future, although some carriers have recently specified 16 meters depth for entrance channels. Containership draft has not been increasing in proportion to the growth of TEU capacity, with most of the capacity growth in postpanamax ships the result of increasing the beam of the ship. A depth of 15 meters should accommodate all but the largest containerships now in service. It is nevertheless possible that potential hub ports will need depths in excess of 16 meters in the likely event that container vessels in excess of 10,000 TEU are ordered in future.

A transshipment hub should have terminal facilities that enable quick ship turnarounds. This includes adequate numbers of cranes, sufficient container handling and storage areas, and a first-rate computer system to run the entire terminal. As discussed in an earlier section, container cranes capable of spanning *at least* 18 rows and 6 tiers of containers on deck will be required to handle the 8,000+ TEU ships now in service. There is already a demand from carriers to install ship-to-shore container cranes with a capability of handling 22, and even 23, rows of containers across. Capability should be provided to berth one or more feeder ships in front of or behind the mother ship along the same quay—requiring quay lengths of typically 1,000 meters for a terminal designed to receive two main line vessels and their feeder vessels, and container yard depth behind the quay should be not less than 400–500 meters, and preferably deeper. The latter factor much depends on the container dwell time, the selected stacking and retrieval system, and the stacking rules, among many others.

Container handling productivity is of obvious importance to a carrier in selecting the transshipment hub. Carriers measure productivity in terms of how long it takes to turn around the ship, that is, enter port, discharge containers, load containers, and leave the port. Much of

Box 23: Hub and Spoke Container Distribution

Global distribution of containers is increasingly accomplished via a network of regional and local hubs with onward service to outlying locations. Using a transshipment hub, a carrier can service marginal markets that do not justify a direct call with large line haul ships, interchange containers between liner strings at strategic crossing points, and realize economies from improved port asset utilization. All of these advantages ultimately result in greater profit to the ocean carrier.

Hierarchy of Ports to Maximize System Efficiency

The hub and spoke network involves a hierarchy of ports, some of which serve as regional or local hubs connected by feeder loops to outlying ports. Large line haul ships, often with 4,000+ TEU capacity, provide service between regional hubs and progressively smaller ships (or barges) are used to pick up and distribute containers within the region.

Very Large Containerships Drive Need for Regional Hubs

Line haul ships of 6,000+ TEU are now common, 8,000+ TEU ships have already been introduced on major routes, 9,000+ TEU ships are being built, and 10,000+ TEU ships are under consideration. The bigger the ship, the more time required in port for loading and discharge. Assuming a handling rate of 165 TEU per hour, each capacity increment of 1,000 TEU requires an additional half day in port to load and discharge containers on the round trip voyage. To offset this additional port time, the operator has the choice of increasing the service speed of the ship, adding another ship to the service string, offering less frequent service, or reducing the number of port calls.

The large containerships are now being designed with service speeds of 24–26 knots; higher speeds for the largest size ships are economically impractical. The capital cost of an additional containership is \$80–120 million, which makes adding a ship to the string an expensive proposition. Customers now expect same day of the week sailing, ruling out reduced service frequency. This leaves minimizing the number of port calls as the viable option, which then creates the need for regional hubs and feeder loops. Essentially, the operator offsets the additional time to load and unload containers by reducing the number of ports the ship enters and leaves.

Future Role of Multiporting

Hub and spoke operations have a clear advantage if they include hub ports located close to the main navigation course of main liners, if these ports can accommodate main liners effectively, and if the ports that have to be feedered do not have these advantages. If they have a hinterland with captive cargoes, this will further strengthen their position. Examples of hub ports with clear location advantages are Kingston and the Panamanian ports in the Caribbean, Marsaxlokk and Gioia Tauro in the Mediterranean, Salalah and Colombo in the Gulf area, and Tanjung Pelepas in Southeast Asia. If the hub ports have, on top of the location advantage, a strong home base of captive cargo, their position can be enormous. Examples are, for instance, the ports of Hong Kong, Singapore, and Rotterdam. A strong home base to some extent may even compensate for location disadvantages. See for instance the ports of the United Arab Emirates, such as Jebel Ali, where ships on the Europe–Far East route have to make a deviation of some 1,300 nautical miles against 163 nautical miles for Salalah, 34 for Colombo, and 7 for Aden.

In practice, the distinction between hub and spoke and multiporting operations is a gradual one, where some main lines make more calls than the other, so that they apply more multiporting and have to feeder less cargo than the other. As main lines cannot call at all ports in a region, they practically always have to transship cargoes to and from other ports. As to future developments, one can state in general that:

1. The further increase in ship size, say to 12,000 TEU and larger, will lead to more transshipment.
2. The increase in container trade will lead to more routes or strings per trade route and thereby to more direct port-to-port connections and thereby to less transshipment.
3. The increase in trade per port will lead to port development, which will increase the ability to accommodate larger ships and the possibility for calls by main line ships, and lead to less transshipment.
4. The increase in trade per maritime region will make the region more attractive for end-to-end routes, increase the number calls by main lines, and lead to less transshipment. Examples of such regions are the Mediterranean and the Gulf areas,

Box 23: Hub and Spoke Container Distribution (*Continued*)

which in the past were only served by passing routes calling at a few way ports. For these regions, end-to-end routes are on the rise, leading to a reduction in transshipment.

It may be clear that it is difficult to predict the increase of transshipment. The data in Box 20 seem to suggest that for most parts of the world some saturation has been reached. If no further increases in ship size are to be expected, one may even expect a decrease in relative terms for some regions.

Source: Author.

this is dependent on the availability of adequate facilities and suitable systems and the absence of administrative barriers. However, the capability to provide trained personnel on a 7-day-week, 24-hour-per-day basis to operate cranes, position containers, and handle documentation has a major influence over the productivity of the terminal. And ultimately, productivity determines the cost of using the hub.

It is essential to have adequate feeder services to and from the transshipment hub. This in turn requires a flow of traffic that will make it attractive for common carriers to serve the hub. In effect, there is a chicken and egg situation. For the hub to be attractive to line haul carriers, there must be an established network of common feeder service that can be used to pick up and distribute containers. For feeder service companies to call regularly at the hub, there must be at least one, and preferably several, major line haul carriers whose containers need to be picked up and distributed.

2.4.2. Benefits of Hub Status

The most obvious benefit is the income generated from operations of a transshipment hub because of the double handling of containers. Consequently, container throughput in hub ports can be greatly boosted, particularly when expressed in TEUs. More importantly, transshipment hubs provide local importers and exporters direct access to line haul service,

reducing transportation time (and possibly freight rates) to and from overseas markets. Reduced transport time directly affects the competitiveness of exporters and the cost of imports, in turn creating jobs and income throughout the economy. Many developing countries have created free trade zones in combination with the hub port as engines for economic growth. Jebel Ali illustrates how a hub port in conjunction with an associated free trade zone can create significant economic activity. The port, which began operating in 1979, now has 72 berths and is serviced by more than 100 shipping lines. About 1,125 companies from 72 countries have been attracted to start up operations in the free trade zone.

2.4.3. Hub Problems

Hubs compete in a highly competitive market segment where customers have options to use other facilities and pricing. An issue confronting the developer of a transshipment hub is how to prevent “hub hopping,” a situation where the number of competing hub facilities is growing rapidly and carriers have the ability to take their business elsewhere (see Box 24). In such a situation, a carrier that represents a significant portion of the terminal’s business can assert considerable pressure on the terminal owner or port to increase the service level offered and at the same time reduce charges and make concessions by threatening to vacate the hub. The owner of the facility would be faced with the dilemma of a \$100–\$200 million investment lying idle if the customer departs. This pressure could force the handling rates below the full cost of providing the transshipment facility. A long-term commitment from a carrier to use the facility before making major investment would be one way to minimize the possibility of hub hopping, although this does not constitute a solid guarantee. Another and possibly better way to retain hub traffic is to involve one or several carriers in the equity structure of the new facility.

Another consideration is that there are fewer terminal services on which to impose charges on transshipment traffic than on local traffic and, in

Box 24: Hub Options on the Asia–Europe Route

More than two dozen transshipment hubs lie along the line haul route between Asia and Europe, about half are east of Suez. This large number of hubs provides plenty of opportunity for “hub hopping.”

Northern Europe: Major container terminal facilities in Northern Europe are located in Rotterdam, Hamburg, Felixstowe, Antwerp, and Le Havre. All five ports are involved in both transshipment and local container traffic. Rotterdam is the largest port in Europe, handling about 8.2 million TEU in 2004, and boasting regular connections with more than 1,000 ports worldwide. Hamburg, the second largest port, handles about two-thirds of the number of containers that Rotterdam handles. Antwerp and Felixstowe are smaller in throughput.

Mediterranean: There are a number of transshipment hubs in the Mediterranean and several more under development. Algeciras serves as a transshipment hub for the Western Mediterranean, West Africa, and Northern Europe; it handled about 2.9 million TEU in 2004. Gioia Tauro, Marsaxlokk, and Cagliari are transshipment hubs in the mid Mediterranean and Damietta, Limassol, Piraeus, and Port Said (East and West) serve as hubs in the Eastern Mediterranean. Other transshipment hubs are being built or planned, including new container terminals in Tangier, Sines, and Ashod.

Gulf: UAE ports in Dubai, Khor Fakkan, and Fujairah have developed a strong presence in container transshipment. These three ports handled about 8 million TEU in 2004, most of which was transshipment traffic. Containers passing through Dubai mainly originate or terminate in the Gulf. Containers through Khor Fakkan and Fujairah are mostly transshipped to and from Pakistan, Western India, the Gulf, and East Africa. A three-day diversion from the East–West line haul route is required to call at ports in the UAE, which has placed them at a

disadvantage to the new transshipment hubs in Oman and Yemen.

Indian Ocean and the Red Sea: Centrally located along the East–West line haul route are Colombo, Jeddah, Salalah, and Aden. Calls can be made at any of these ports with virtually no diversion from the line haul route. Colombo is a major transshipment hub for Southern India and handled 2 million TEU in 2004. Jeddah is principally an import and export channel for Saudi Arabia, but about 10 percent of traffic through Jeddah has traditionally been transshipped to other points in the Red Sea. Both Salalah and Aden are new facilities that have begun operating within the past two years. These new hubs had a combined throughput of about 2.2 million TEU in 2004 and plans call for significant future growth in transshipment traffic, much of which will be attracted from the UAE ports Colombo and Jeddah.

Asia: At the eastern end of the route are Hong Kong, Singapore, Shanghai, Shenzhen, Busan, Kaohsiung, and Yokohama. Hong Kong lays claim to having the world’s largest overall container volume (22.4 million TEU in 2005), the majority of which originates in or is destined for China. Singapore, which has the world’s second largest container volume (22.3 million TEU in 2005), is the major transshipment hub for Southeast Asia and the Indian Ocean, which competes with Pelepas, Malaysia (4.1 million TEU in 2005). Busan is a transshipment hub for containers into and out of Northern China (11.8 million TEU in 2008), and Kaohsiung is a transshipment center for Central Asia. Japanese ports such as Yokohama, Kobe, Tokyo, and Nagoya are major centers for container activity, but the majority of containers are distributed inland by rail or highway. A variety of other ports such as Manila, Port Klang, and Vung Tau function as local hubs for their respective areas.

Source: Author.

general, the larger the percentage that transshipment traffic is to total volume, the smaller the additional revenue potential of the terminal. In addition, ports with a mixture of local and transshipment traffic frequently set transshipment charges low to attract mother ships to the port to improve throughput levels, achieve economies of scale, and lower handling cost.

Service for import and export traffic can thereby be improved. A port highly specialized in transshipment business is at a distinct disadvantage competing with ports that have a mix of local and transshipment business, where revenue from the former is frequently used to cross-subsidize the latter. This is only acceptable because transshipment generates additional economic value.

2.4.4. Inland Container Terminals Shifting Activities from the Port

To maximize intermodal efficiency and free up valuable real estate in the port area, inland container terminals are increasingly displacing activity traditionally performed in the port. While there are many advantages to inland container terminals, from a port's viewpoint there can be serious drawbacks as they divert economic activity away from the local area and open the possibility of competition from other ports (see Box 25).

2.5. Environmental and Safety Concerns

Given the growing concerns about protecting the environment, ports are now faced with the need to implement regulations that will affect the freedom of port users and must make a significant investment in environmental and safety facilities as well. These investments will have limited commercial value and often produce only indirect social payback. How to implement these regulations and finance related facilities is an important issue.

2.5.1. Growing Environmental Concerns

Eliminating oily ballast water discharge from ships is a major environmental concern. This issue is well recognized internationally and provision of adequate reception facilities in port is required under the International Maritime Organisation (IMO) International Convention for the Prevention of Pollution from Ships (MARPOL) Convention 1973/78. Regulation 10/7 and 12 of the pollution convention require each state to ensure that sufficient oily ballast water reception facilities are available at oil-loading terminals, ports with ship repair facilities, and in those ports in which ships have oily residues to discharge to shore. To meet these requirements, states need to offer reception facilities for tank washings (slops), contaminated ballast water, oily water from engine room bilges, and for residues from fuel oil purification, particularly heavy fuel oil. Providing such a reception facility entails a significant capital expense that produces little, if any, financial return. How to pay for this facility is a major issue confronting port authorities.

But environmental concerns relating to ships in port go beyond the issue of oily water discharge. They involve the entire range of environmental issues from water pollution, air pollution, aesthetics, noise, transfer of foreign marine species and more. Ports will need to find suitable solutions for disposing of dredged materials and implement regulations and operating procedures for terminals and anchorages to address these types of issues (see Box 26).

2.5.2. Recent Environmental Article

LA-Long Beach Cuts Emissions

JoC Online

Wednesday, August 24, 2005

A program that calls for ships to reduce their speed to 12 knots or less within a 20-mile radius of the ports of Los Angeles and Long Beach saved 100 tons of harmful emissions in the first quarter of the year.

The Vessel Speed Reduction Program translates into an average daily savings of 1.1 tons of nitrogen oxide (NOx), according to Port of Los Angeles.

"We are very pleased with the amount of NOx being eliminated with the Vessel Speed Reduction Program," said Port Interim Executive Director Bruce E. Seaton. "But we can do better. We want the compliance zone increased to 40 nautical miles, which is the influence area used by the Southern California Air Quality Management District to determine basin emissions."

LA-Long Beach implemented the voluntary antipollution program in 2001 as a measure contributing to the ozone reduction goals in the 2003 State Implementation Plan for Marine Vessel Emissions Control Strategies. Currently, nearly 70 percent of shipping lines calling at the ports participate in the voluntary program.

Reported by Stephanie Nall, *Pacific Shipper*, in Seattle

2.5.3. Issue of Substandard Ships

Despite the fact that many ships have valid certificates issued by their flag states and

Box 25: Duisburg Inland Container Terminals

The first inland container terminals (ICTs) appeared along the Rhine during the late 1960s. The Rhine, which is the main inland waterway connection in Western Europe, has the largest container traffic in Europe and is for a significant part navigable with containers stacked up to five high. The Port of Duisburg, which is situated along the Rhine, is the largest inland port of Europe. It serves as a main inland hub for all larger ports from Antwerp to Hamburg. The larger volume, however, goes through the Port of Rotterdam. Main terminal facilities in Duisburg at this moment are the DeCeTe (Duisburg Container Terminal) terminals and the Rhein-Ruhr Terminal. Currently Europe Container Terminals (ECT) is building a trimodal terminal in Duisburg.

As do most of the European river container terminals, Duisburg offers trimodal facilities, including direct access to rail transport and container stuffing and stripping facilities on the terminal. Rail plays a very important role, especially in the further distribution of cargo from Duisburg to destinations deeper inland in Germany and Eastern and Southeastern Europe.

Currently Duisburg offers a wide range of intermodal services. These include:

- Services to and from most of the barge terminals along the Rhine, including those in the Port of Rotterdam.
- Services to and from the ports of Hamburg, Bremen, Rotterdam, and Antwerp by rail.
- Services to several destinations in Germany by rail (for example, Germersheim, Donauwörth, Nürnberg, Augsburg, and München).
- Services to several destinations in Eastern and Southeastern Europe by rail (for example, Northern Italy, Switzerland, Austria, Hungary, the Czech Republic, the Slovak Republic, Poland, and Russia).

The presence of an ICT at Duisburg is characteristic of a partial shift of the collection and distribution function away from the seaports. In addition, these terminals help to relieve the seaport areas of potential congestion as they will function as satellites for these seaports.

Within Europe, the Rhine plays a central role in this context. The Rhine area presently consists of some 35 barge terminals for handling boxes. Most of these ICTs offer trimodal facilities because direct access to rail transport and container stuffing and stripping facilities improve their competitiveness. An important issue in this context is the key role ICTs play in the emerging door-to-door services of a large number of container barge operators desirous of extending their logistics services.

From a seaport's point of view, ICTs attract economic activity away from the port area. Other ports might profit by competing to be the point of entry and exit for the ICTs. Smaller ports may benefit from the tendency of emerging ICTs by effectively competing with the larger ports. This may lead to a certain degree of deconcentration.

In the recent past, container transport by inland waterway has increased strongly and several new ports have been established at even less than 50 kilometers from the main ports of Rotterdam and Antwerp. In 2004, the terminal of Duisburg had a container throughput of 610,000 TEU, making it the biggest inland port, followed by Würth and Germersheim with about 300,000 TEU each, and Strasbourg in France with 156,000 TEU.

The impact of inland terminal network development on the concentration pattern and competitive advantages of seaport areas remains uncertain. The actual tendency (concentration or deconcentration) will primarily be determined by the success of the port authorities and port companies in developing strong functional ties with the nodes in the hinterland network. Also, the ability to attract and retain some of the mega carriers that are active in door-to-door transport logistics will be an important factor. A final important factor is the extent to which the load centers are able to benefit from public-private involvement in decision making on and the financing of port infrastructure projects and cross-border hinterland network connections.

Source: Author.

classification societies, a number of ships do not comply with international standards for safety, pollution prevention, and shipboard liv-

ing and working conditions recognized in international conventions. Political and social pressures have been placed on governments to

Box 26: How a Major Transshipment Terminal and Pretty Bay Beach Coexist

Malta Freeport illustrates how a container terminal can live in harmony with its neighbors. The terminal is one of the largest transshipment facilities in the Mediterranean, receiving more than 1,700 ship calls annually. It is situated in the southeast corner of the island, in Marsaxlokk Bay. This area is one of the tourist spots in Malta, and maintaining the integrity of the environment was a great concern to the terminal developer.

In the 1990s, a decision was made to dredge the bay to accommodate deep draft ships calling at the terminal. This entailed removal of about 250,000 cubic meters (m³) of silt from the bay to deepen the channel, turning basin, and water depth along the quays. Six valleys drain into Marsaxlokk Bay and vibrocore testing revealed that a few bottom layers contained discrete sand that could be used to create a beach. These layers were located in the middle of the bay where the turning basin was to be created. It was decided that some of the dredged material could be used to improve and expand the beach called Pretty Bay near the terminal site that had eroded due to wave action on the retaining wall of the coastal road. Expanding the beach would prevent waves from hitting the retaining wall, minimizing further erosion, and provide a considerably larger beach area.

To create the beach, about 20,000 m³ of sand dredged from the turning basin was pumped to shore and sprayed. This saved 10 percent in the contract dredging costs, as the alternative was to transport the sand five kilometers outside the harbor to a disposal site. More importantly, the new beach has attracted economic development in the neighboring village of Birzebbuga. New holiday flats have sprung up, a new restaurant has opened and there has been a general increase in tourist activity. The deeper beach also allowed the coastal road to be widened, reducing congestion in the peak tourist periods.

Recognizing its role as a good neighbor, the terminal has instituted strict standards on ships calling at the terminal. The first sign of unsanitary discharge from any ship at the terminal will cause immediate stoppage of cargo handling on the offending ship, followed by investigation of the cause of the incident. Contributing to harmony of beach and terminal is the natural flushing that occurs in the bay, which is self-cleansing as a result of circulation and has remained consistent even after the terminal and breakwater developments.

Source: Author.

implement policies to reduce the amount of substandard shipping in their waters. At an international level, the Paris Memorandum of Understanding (MOU) on Port State Control, which came into effect in 1982 and includes 18 signatory countries, requires each maritime authority to inspect a total of 25 percent of the individual foreign merchant ships entering the port state during a year. If ships do not meet a set of standard criteria, port states may detain the ships until proper measures are taken by the shipowner. The Paris MOU has led to more than 18,681 inspections of ships in member states in 2001 which resulted in 1,699 detentions. In 2000, the number of inspections was only 11,358 with a detention rate of 1,764. Since inception the number of detentions have decreased, suggesting either a positive impact of the measures or less rigorous inspection

norms (possibly illustrated by the “Erika” disaster).

While enforcement of policies to eliminate substandard ships has a commendable objective, the enforcement practice can affect the competitive position of individual ports. For example, if a situation exists where the strictness or accuracy of inspections varies among port states, substandard ships may alter their routes and choose more accessible ports of call in a same range. Ports with lax inspection procedures would therefore have an unfair competitive advantage. One approach to offset this negative competitive impact is to focus on rewarding good behavior, rather than penalizing bad behavior. An example of an innovative approach that rewards good behavior is the Green Award, initiated by the Port of Rotterdam (see Box 27).

Box 27: The Green Award Initiative

The Green Award initiated by the Port of Rotterdam has the objective of stimulating good behavior rather than punishing bad behavior, by offering discounts on port tariffs for extra clean and extra safe ships. Ships and crews meeting standards above the required minimum can apply for a Green Award certificate provided by the Bureau Green Award. Certified ships and crews can apply for tariff reductions by port service providers, including the major ports in the Netherlands, Portugal, South Africa, Spain, and Sullom Voe in the United Kingdom, as well as providers of towage and pilot services. The reductions amount to up to 7.5 percent of port fees.

Source: Author.

2.6. Impact of Changing Dynamics on Ports

Developments taking place in international logistics, shipping technology, industry consolidation, and environmental regulations are driving major changes in the way ports will operate in the 21st century. As the world economies become more intertwined, ports are being increasingly cast as partners in assisting customers to compete for business share in the global market. Technology in the shipping sector, particularly relating to containerization and information exchange, is changing at a rapid rate, creating the need for major financial commitments to stay ahead of the technology wave. Mergers and acquisitions in the shipping sector, along with the growth of a relatively small number of global terminal operators, are creating a small number of powerful players that change the way port services are bought and sold. Distribution patterns are increasingly evolving into hub and spoke networks, creating winners and losers among ports that achieve hub status. All through this is the increasing concern about the environment and safety, which affects the way ports deal with their customer bases.

3. CHALLENGES AND OPPORTUNITIES

Changes taking place in the port sector present difficult challenges to port administrators, ter-

minal operators, and other port service providers. But these changes also present opportunities for new ways of doing business and open the door to entry of new players throughout the range of port activities. In short, it's a brand new era for everyone involved in the port sector and the opportunities, as well as the challenges, are substantial.

3.1. Transferring Port Operations to the Private Sector

The traditional closed fraternity of entrenched players with widespread involvement of public entities in the ownership and ports operation is no longer acceptable. Port authorities worldwide are under increasing pressure to turn over operations in the port to the private sector. They are being forced by competitive pressures to step into a landlord and regulatory role, focusing on administrative activities that public entities do best.

3.1.1. The Need for Change

Traditional ways of doing business in ports are being challenged worldwide by demands for gains in port efficiency, increased customer responsiveness, and lower costs to move cargo through the port. It has been widely demonstrated that use of private sector companies throughout the range of port operations provides an opportunity to eliminate traditional, bureaucratic operating procedures and controls and modernize facilities and equipment through new financing channels. It is also widely accepted that service providers with operating and administrative experience in other ports can transfer this experience and bring to a port best practices and appropriate modern technologies employed elsewhere. But even more important, by passing the reins of port operations from the public to the private sector, port reform offers the ability to shift the financial burden of port expansion and development to the beneficiaries of the expenditures.

3.1.2. Impact of Privatizing Operations

There are numerous success stories where port authorities have transferred to the private

sector operations previously performed by public employees. A classic example is Buenos Aires, where the award of terminal concessions to four competing companies in 1994 has brought down handling charges significantly through improved labor productivity. In another example, after transferring major port facilities to the private sector between 1995 and 1998, Panama attracted more than \$380 million in investments for modernization and expansion. When management of the Kipevu container terminal in Mombasa was transferred to a commercial terminal operator, outdated equipment was temporarily replaced, bureaucratic procedures streamlined, and productivity of the terminal improved. In the big picture, 220 privatizations from 1992 to 2004 have generated private investments exceeding \$21 billion to rehabilitate terminals and renew superstructure in the ports that were privatized.

This is not to say that port privatizations have been without problems. There have been a number of cases of privatizations involving ports that have not worked out. In Indonesia, the Koja container terminal under private management ran into difficulties and the public port company took back the facilities. The City of Rostock (Germany) demanded return of the terminal it contracted to a private group for operation, citing lack of compliance with the original contract. Following a dispute with the Port Authority of Trieste (Italy), the commercial terminal operator (Europe Combined Terminals, ECT) selected to operate the container terminal in the port under a 30-year contract withdrew from the contract after 18 months. The terminal operator awarded the concession to operate the container terminal in the Port of Rosario (Brazil) is reported to have lost more than \$40 million under the contract as a result of work disputes and has cancelled the contract. And unfortunately, the success story in Kipevu (Kenya) was reversed when the commercial terminal operator terminated its contract with the port as a result of breakdown of equipment that the government failed to refurbish or replace.

3.1.3. Lessons Learned from Past Privatizations

A major lesson learned in port privatizations is the need for transparency and open competition through a structured international tendering process. Many examples can be given of attempted port privatizations that have bogged down due to legal challenges to the selection of the company to be awarded a concession contract. Montevideo is a prominent example of how things can go wrong in a privatization process. Attempts at privatizing services in the port had failed four times due to court challenges before a successful round was completed. At a later stage, the government announced plans to auction off the terminal on the stock market.

Conflicts and legal challenges can be minimized by clearly presenting the bidding rules and selection process in the bid documents. Criteria to be used for selecting the successful bidder should be stated and a pro forma contract provided with the bid documents so that everyone is competing for the same contract. The role of the port administration after the privatization and any limits on the contractor's ability to operate should be stated in the bid package. Bidders should be requested to provide a business plan that will become part of the final contract. In the plan, bidders should state how they will address labor issues that may arise as a result of any downsizing of port operating personnel or changes in work practice rules. They should be asked to give references of how these issues were dealt with at other ports in which they operate. The bidders should be requested to state quantifiable targets for productivity gains and market development. This business plan should be accorded significant weighting in the selection process. Incentives and penalties should be provided in the contract should there be a significant deviation from targets in the business plan.

It is important to develop beforehand a well-reasoned plan for transitioning to private operation and have a clear understanding of how the port will function after the various port services are privatized. A number of important questions should

be addressed: What changes in laws and regulations are needed to allow the private sector operation in the port? How much management and operational autonomy will be granted to the private operators? What will be the role of the port authority in regulating the rates and practices of private operators in the port? Who will be responsible for common area maintenance and upgrades, and how will the cost of these activities be recovered from port users? Will the port continue to have a marketing and planning function after privatization, or will this be left to the individual service providers? What resources will be required to carry out the functions that remain with the port authority? What type of retraining program and severance package will be created to address the issue of redundant personnel?

3.1.4. Contingency Plan

The best and tightest contract will still not ensure that there will be no problems in the operation of port services under a private contractor. There should be a contingency plan for default by port service contractors to prevent work stoppage that could affect port operations. This plan should include defined penalties to compensate the port or government when resources made available by the operator are inadequate.

3.2. Opportunities for the Private Sector

The worldwide market for port services is estimated to generate available revenues of \$50–55 billion annually. While these numbers are very rough, they indicate the size of the available market to companies active in the port sector. This is a large available market that should be of interest to a wide variety of global, regional, and local port service providers (see Box 28). See Box 29, which illustrates the use of private sector capital for expansion to cope with growing demand at the Port of Hong Kong, currently the world's largest port.

3.2.1. Terminal Operations

This area is the most advanced in terms of private operation of port services. Of the 220 port privatizations captured in the World Bank

Box 28: Estimated Available Market in the Port Sector

	Estimated Annual Revenues (billions of \$)
Container Terminal Operations	30 to 40
Tug Assist Services	4 to 5
Maintenance Dredging	4 to 5
Information Technology	2 to 3
Environmental and Ship Safety Services	1 to 2
Other Port Services	4 to 5

Source: Author.

Private Participation in Infrastructure (PPI) database, 124 have been concessions or management contracts involving existing terminal operations. But there are many more opportunities. There are more than 2,800 ports worldwide, many of which still have publicly operated terminals that are candidates for private takeover involvement in management and operations under concession agreements or management contracts. We roughly estimate that the available revenue from container terminal operation is on the order of \$38–40 billion annually.

3.2.2. Towage Services

Port authorities often own and operate the harbor tugs used for ship assistance. This activity is ripe for privatization and is relatively easy for the private sector to provide. It has, for instance, attracted the attention of Smit Internationale of the Netherlands, which has been actively pursuing this market internationally and now operates tug services in the Netherlands, Belgium, Germany, Panama, Nigeria, Mexico, Argentina, República Bolivariana de Venezuela, Gabon, Singapore, Malaysia, Indonesia, Netherlands Antilles, and The Bahamas. Other global, regional, or local tug operators are certainly also finding this market interesting, if they can break the existing public or private monopolies. A rough estimate is that the harbor tug service market represents available revenues of up to \$3 billion annually.

Box 29: The Port of Hong Kong—Why is it so Successful?

By any standard, Hong Kong has established an enviable presence in the world port sector. The port annually receives about 42,000 seagoing vessels and 190,000 river trade vessels. In 1999, Hong Kong handled more than 16.1 million TEU, making it the largest port in the world in terms of container throughput. To accommodate traffic through the port, there are eight major container terminals, with a ninth now under construction and two more planned. Looking outward, container traffic is projected to grow to 24 million TEU in 2006 and 33 million TEU in 2016. The port has the ability to provide shippers with a full network of competitive services and frequent sailings to all areas of the world. Hong Kong's cargo handling productivity ranks among the world's highest. One of the container terminals in Kwai Chung handles more than 1 million TEU annually at a single berth—more than twice the world standard. This terminal is capable of loading and discharging 1,200 TEUs in 10 hours with three gantries that average 40 moves per hour. The success of Hong Kong is based on a number of factors, including the port's location relative to major markets, a natural harbor and, perhaps more than anything else, a business-friendly environment with heavy reliance on the private sector.

Reliance on the Private Sector

Virtually all activities in the port are performed by the private sector. Three private firms operate the eight container terminals in Kwai Chung container port. HIT, the largest of these companies, controls four of the terminals and handles 60 percent of the containers passing through Kwai Chung. The remaining traffic is shared among Modern Container Terminals and SeaLand Orient Terminals. Four private operators provide mid-stream operations and more than 100 private operators offer warehousing services. Three firms provide tug service in the port, the largest of which is Hong Kong Salvage and Towage. Seven companies provide stevedoring services and six companies provide ship repair. Hong Kong Pilots Association Ltd., which is owned by the member pilots, provides pilot service in the port.

The government's operational function in the port is limited to collecting refuse, preventing and cleaning up oil discharge, providing vessel traffic services, managing a ferry

terminal, maintaining 61 harbor moorings, and coordinating search and rescue in the South China Sea. The Marine Department performs these functions as part of its responsibility to facilitate safe and expeditious movement of ships, cargoes, and passengers within Hong Kong waters. A Port and Maritime Board has been established to set overall policy for the maritime sector in Hong Kong, but this board does not generally become involved in oversight of commercial operations in the port. Overall, the government has a hands-off approach to port operations, relying on competition within the private sector to shape and control activities.

Expansion and improvement of facilities in the port is entirely funded through the private sector. While the government develops long-term strategic land use plans for the port, it relies on the private sector to finance, build, own, and operate new facilities in response to market demand. For example, since 1972 the private sector has built eight modern container terminals in the port and a ninth is now under construction. In awarding such terminal contracts, the government earmarks an area of water to be put out for tender, defines the responsibilities of the developer, and selects the bidder who offers the highest price for the development site. Once awarded, the contractor is responsible for making the entire investment in infrastructure and superstructure on the site. The government's role is limited to providing the agreed water depth in the approach channel to the terminal.

Implications for Other Ports

A general reliance on the private sector to provide the necessary port services and infrastructure, with the government providing the minimum oversight needed to protect the public interest, has obviously worked very well in Hong Kong. While other factors have contributed to the success of the port, a business-friendly environment, reliance on market forces, and the government's hands-off approach to managing port services have greatly contributed to Hong Kong's leading position as an international shipping center. This model is worth considering, particularly in ports that have sufficient traffic volume to enable competition among service providers to thrive.

Source: Author.

3.2.3. Maintenance Dredging

This activity has traditionally been performed by commercial dredging contractors under contract to port authorities or by port authority personnel using publicly owned dredgers. It is estimated that maintenance dredging is a \$4–5 billion available annual market that can be completely turned over to the private sector. Port authorities that own and operate their own dredging equipment could corporatize the dredging function and sell the business along with its assets to the private sector. But more innovative concepts for privatizing maintenance dredging might be considered. For example, maintenance dredging could be outsourced on a concession basis similar to the concession awarded for channel dredging and maintenance in the Rio Parana, where a portion of the project revenues will come from direct charges by the concessionaire to future channel users and the port authority receives a concession fee. A more radical concept could be a contract between a dredging company and a container shipping company or consortium of companies to maintain specified water depths at the carrier's terminals on a worldwide basis. Much depends, however, on the volumes to be dredged and the timing of the dredging.

3.2.4. Information Technology

Increasingly sophisticated IT is spreading throughout the port sector as users demand more timely information to support their logistics systems. This is producing a variety of opportunities to design, install, and operate IT systems in ports throughout the world. IT services can be totally outsourced by port authorities and terminal operators and the market is estimated to represent \$2–3 billion in annual available revenues. Among options that can be considered for structuring IT

service contracts are joint ventures between the port authority and the IT provider, an arms length concession for IT services, or a concession based on in-kind service compensation.

3.2.5. Environmental Facilities and Ship Safety

This is an area ripe for innovative privatization concepts, as many of these functions can be performed by the private sector. For example, a private company could be given the concession to operate a ballast water treatment plant in the port, with revenues derived from receiving charges and resale of recovered oil (see Box 30). A private company could install and operate the vessel management system in the port under a concession agreement. The functions of port state control could be contracted under a management agreement to a competent inspection company or classification society, assuming the latter properly apply the inspection rules. A company could be contracted to maintain and operate aids to navigation on a local or regional basis, such as now performed by the Middle East Navigation Aids Service (MENAS) in the Gulf area (see Box 31). Altogether, it is estimated that the available market from environmental and ship safety activities is \$1 to 2 billion annually.

3.2.6. Other Port Services

Warehousing and storage, container freight station operation, port security, pilotage, and equipment maintenance are all activities that can be operated by the private sector. It is estimated that worldwide these activities represent an available market of some \$4–5 billion annually.

See Box 32, which can be used as a general checklist when planning a terminal privatization or reform process.

Box 30: Ballast Water Treatment Plant in the Port of Portland

In the late 1970s, the Port of Portland (Oregon) made a major investment in a ship repair facility designed primarily to accommodate large tankers operating in the Alaskan trade. Included in the project was construction

of a water treatment facility to receive oily ballast tanker wash water. The plant is available to ships loading or discharging cargo in the port, as well as ships entering the shipyard for repair.

Box 30: Ballast Water Treatment Plant in the Port of Portland (*Continued*)**The Plant**

The complete system includes eight connection stations, receiving lines, holding tanks, a heating plant, decant tanks, separators, processed water storage, oil storage, and a water quality testing laboratory. Storage capability is provided for 157,000 barrels of slops, 11,500 barrels of recyclable oil, and 30,000 barrels of disposable water. Ballast water can be received from a ship at the rate of 3,000 barrels per hour. Most of the recovery process is achieved through tank settling over time. Received ballast is typically kept in the tank for 30 days and skimmed each day. After 30 days, the tank is heated with internal steam coils to finish the separation process. Recovered oil is sold and disposable water is either pumped through the city sewer system or directly into the river depending on the water quality. The port sets standards for acceptability of wastewater.

Economics of the Facility

The facility cost \$5.2 million to construct in the late 1970s. Revenues are generated by

the facility from a charge against the ship for receiving ballast water (\$4–5 per barrel) and sale of recovered oil on the open market. Recovered oil is sold to remarketers for blending and resale for use as boiler fuel. The selling price of the oil has typically been \$1.50–2.00 per barrel, but prices as high as \$20 per barrel have been realized in periods of extreme demand. Up to 400,000 barrels of recovered oil have been generated by the plant in a year.

Potential to Employ Elsewhere

This type of plant could be considered for use in other ports, but there are factors that affect the attractiveness of the concept. Supplying steam to the plant is the principal operating cost and it would greatly help the economics to have access to a cheap source of steam. It is important to have proximity to a market that can use the recovered oil, which is not suitable for all applications.

Source: Author.

Box 31: Middle East Navigation Aids Service

The Middle East Navigation Aids Service (MENAS), a registered nonprofit organization based in London, maintains the lighthouses, light buoys, racons (maritime radar beacons) and other navigation aids in the Gulf that are outside port limits. More than 500 navigation aids are installed and maintained in this area. MENAS extends from Kuwait down the side of the Gulf to Didamar Island in the Strait of Hormuz, and then south to Masirah Island and Channel in the western Gulf off the coast of Oman.

MENAS operates the lighthouse tender and buoy lifting vessel *Relume* to provide the maintenance services required for the lights and buoys in the Gulf, and receives its income from charges (light dues) levied on vessels entering the Gulf. These charges, at £1.70 per 100 net registered tonnage (NRT) for each visit a vessel makes, have remained constant for 10 years. Income has risen from the increasing numbers of vessels entering the Gulf in recent years, particularly from the higher

numbers of container ships calling at Dubai and Jebel Ali.

In addition to fixed navigation aids, MENAS broadcasts navigational information to shipping in the Gulf area as NAVTEX (primary means for transmitting coastal urgent marine safety information to ships worldwide) warnings. These are also copied to Muscat Radio in Oman, which retransmits them as NAVTEX warnings, and to the Area IX office, where they are included in the Area IX weekly Notices to Mariners. Permanent changes to channels and pipelines and other alterations are then notified to mariners via a printed MENAS Notice to Mariners, distributed free of charge to vessels by all shipping agents in the Gulf area. The MENAS warnings are withdrawn after the British Admiralty publishes its Notices to Mariners covering the same changes.

Source: Author.

Box 32: Checklist for Negotiating a Terminal Privatization**1. The Proposed Transaction**

- What are the government's primary and secondary objectives in privatizing the terminal: generating proceeds to the government from the transaction, increasing efficiency of port services, attracting foreign investment to improve port infrastructure, rationalizing the public labor force, reducing the government's fiscal burden, or some other goal?
- What area and specific activities in the port are to be privatized in the transaction—and what is not included in the transaction?
- What modality is best suited to the transaction—outright sale of assets and land, long-term lease of the facility under concession arrangement, management agreement to operate the facility, or a different model?
- How will the negotiations with the proposed contractor be conducted and who will be assigned to the government's negotiating team to complete the transaction?
- Who will prepare the term sheet to be presented to the proposed contractor and what schedule will be set for completing the transaction?

2. Structure of Payment to the Government

- How is the compensation to be structured—is there an initial cash payment to the government, or is the proposed compensation to the government based on some form of rent, revenue sharing, royalty, or other deferred payment arrangement?
- Is a portion of the initial payment for the terminal rights noncash compensation based on providing equipment and services? If so, how does the contractor propose to establish the fair value of the equipment and services?
- What is the discounted present value of the initial payment and flow of deferred payments from the proposed contract?
- How does this discounted present value compare with the discounted present value of the projected profits or surpluses of the terminal as currently operated?

3. Risk Being Assumed by the Government

- In the event of losses being incurred by the contractor under the proposed agreement, will in any circumstances the government be liable for these losses?
- Under what circumstances can the proposed contractor hold the port authority or

government responsible for terminal disruptions, missed performance targets, unexpected operating costs, or other event?

- Is there any possibility that the government could directly incur losses under the agreement?

4. Performance Targets

- What throughput does the proposed contractor project for the terminal over the next 10 years from local traffic, transit traffic, and transshipment traffic?
- How does the proposed contractor plan to reach these throughput projections?
- Does the proposal state targets for increasing minimum productivity standards (for example, minimum average crane moves per hour) in the terminal?
- How does the proposed contractor plan to reach these minimum productivity targets?
- Is there a provision for penalties and incentives in the proposal for meeting the planned throughput and productivity targets?
- What assumptions has the proposed contractor made, or conditions has it set, for the role of the port authority and government in achieving these targets?

5. Operational Issues

- What services are to be provided by the port authority to the terminal after takeover by the proposed contractor, and how will these services be paid for?
- Who will be responsible for maintaining the civil structures and water depth alongside the quay?
- Will the proposed contractor provide new management and senior operating personnel? If so, who will they be and what will be their qualifications?
- How many personnel does the proposed contractor plan to employ in the terminal?
- Will existing personnel in the terminal have priority for future job positions in the terminal after takeover by the proposed contractor?
- Will the proposed contractor use the salary level and structure currently in effect for personnel employed in the container terminal? If not, what will be the changes?
- What interaction does the proposed contractor foresee with other service providers operating in the port, and how does it plan to cooperate with the other providers?

Box 32: Checklist for Negotiating a Terminal Privatization (Continued)

- Under a concession or management agreement, will the port authority have full and unfettered rights at all times to enter and inspect the terminal after transfer to the contractor?
 - Will the proposed contractor carry all-risk and liability insurance on the container terminal? If so, what specific risks will be covered, what will be the limits on liability coverage, and will insurance cover the actual cost of equipment replacement?
- 6. Terminal Handling Charges**
- What structure and level of terminal handling charges does the proposed contractor plan to impose on containers and other cargo through the terminal?
 - How much profit is built into these charges?
 - Are these charges competitive with other ports in the region?
 - What role will the government have in reviewing and approving any changes in the structure or level of container handling charges?
 - If the contract provides for revenue sharing, what portion of terminal handling revenue is to be paid to the government?
 - What process is to be employed to ensure that the government receives all of the compensation it is due?
- 7. Potential Contractual Conflicts**
- What is the provision for dispute resolution, that is, the process, venue, applicable rules, and laws?
 - What language will be paramount in event of any ambiguity in the contract?
 - Will the proposed contractor agree to be subject to all prevailing local laws?
 - Are there provisions for terminating the contract with the proposed contractor should terminal throughput or productivity targets not be met? If so, what is the process for terminating the contract?
 - Is the terminology in the force majeure provision acceptable to the government? If not, what changes are required to make it acceptable?
 - What provisions has the proposed contractor included in the proposal concerning its obligation for payment of taxes to the government?
- Will the proposed contractor provide a bank guarantee as security from the time the government accepts its proposal until the hand-over is complete?
 - What performance guarantee will the contractor provide as security for complying with the obligations taken on in the proposed contract?
- 8. Hand-Over of the Terminal**
- What is the proposed timing of the hand-over of the terminal to the proposed contractor?
 - What specific steps will be taken by the contractor to plan for and implement the hand-over?
 - Will the proposed contractor have transition personnel in the terminal for a time period preceding the hand-over to organize the process, and how will these personnel interact with the current staff?
 - What is the role of the port authority in the hand-over process?
 - What responsibilities will the port authority and government continue to have after the transaction?
- 9. Terminal Development**
- What commitments are being made by the proposed contractor to improve and expand the terminal?
 - What type of training program will be provided by the proposed contractor for terminal personnel?
 - Will the proposed contractor install a first-rate computerized information system, and in what other ports is this system now used?
 - When will this system be installed?
 - Will provision be made to connect this computer system to the current or future computer system operated by the port authority, and to what extent will the port authority have access to data in the terminal system?
 - What role does the proposed contractor envisage for the port in competing for transshipment business with other ports in the region, and are there any potential conflicts of interest as a result of the proposed contractor operating terminals in one or several of these other ports?

Source: Author.

REFERENCES

Drewry Shipping Consultants. 2005. *Annual Review of Global Container Terminal Operators-2005*.

Hummels, D., D. Rapoport, and K. Yi. 1998. "Vertical Specialization and the Changing Nature of World Trade." *FRBNY Economic Policy Review* June: 92.

Cullinane and Khanna. *Journal of Transport Economics and Policy*.

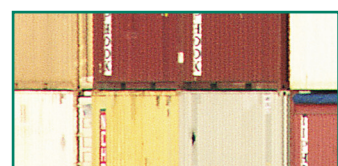


PORT REFORM TOOLKIT

SECOND EDITION

M O D U L E 3

ALTERNATIVE PORT MANAGEMENT STRUCTURES AND OWNERSHIP MODELS



THE WORLD BANK

© 2007 The International Bank for Reconstruction and Development / The World Bank

All rights reserved.

The findings, interpretations, and conclusions expressed herein are those of the author(s) and do not necessarily reflect the views of Public-Private Infrastructure Advisory Facility (PPIAF) or the Board of Executive Directors of the World Bank or the governments they represent.

Neither PPIAF nor the World Bank guarantees the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of PPIAF or the World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

The material in this work is copyrighted. Copyright is held by the World Bank on behalf of both the World Bank and PPIAF. No part of this work may be reproduced or transmitted in any form or by any means, electronic or mechanical, including copying, recording, or inclusion in any information storage and retrieval system, without the prior written permission of the World Bank. The World Bank encourages dissemination of its work and will normally grant permission promptly.

For all other queries on rights and licenses, including subsidiary rights, please contact the Office of the Publisher, World Bank, 1818 H Street NW, Washington, DC 20433, USA, fax 202-522-2422, e-mail pubrights@worldbank.org.

ISBN-10: 0-8213-6607-6
ISBN-13: 978-0-8213-6607-3
eISBN: 0-8213-6608-4
eISBN-13: 978-0-8213-6608-0
DOI: 10.1596/978-0-8213-6607-3

MODULE THREE CONTENTS

1. Objectives and Overview	69
2. Evolution of Port Institutional Frameworks	70
3. Port Functions, Services, and Administration Models	73
3.1. Interaction with Port Cities	76
3.2. Role of a Port Authority	77
3.3. Role of Port Operators	78
3.4. Roles of a Transport Ministry	78
3.5. Port Functions	80
3.6. Port Administration Models	81
3.6.1. Service Ports	82
3.6.2. Tool Ports	82
3.6.3. Landlord Ports	83
3.6.4. Fully Privatized Ports	83
3.7. Globalization of Terminal Operations	84
3.8. Port Management and Competition	87
3.9. Port Sector Regulator	89
3.10. Value-Added Services	89
4. Port Finance Overview	92
4.1. Financing Port Projects	93
4.2. Financing Ports: From a Lender's Point of View	97
4.3. Public-Private Partnerships	98
5. Port Reform Modalities	99
5.1. Strategies and Reform Options	100
5.1.1. Modernization of Port Administration	101
5.1.2. Liberalization	101
5.1.3. Commercialization	102
5.1.4. Corporatization of Terminals	104
5.1.5. Corporatization of a Port Authority	106
5.1.6. Privatization	107
6. Reform Tools	109
6.1. Contracting Out and Use of Management Contracts	109
6.2. Concession Arrangements	110
6.2.1. Leasehold Agreements	112
6.2.2. Concession Agreements	114
6.2.2.1. Master Concession	116
6.2.2.2. BOT Arrangements	117
6.3. Comprehensive Privatization	120
6.4. Ports as Transport Chain Facilitators	123
7. Marine Services and Port Reform	124
7.1. Harbormaster's Function	125
7.2. Pilotage	126
7.3. Tugboat Operations	126
7.4. Mooring Services	127
7.5. Vessel Traffic Services and Aids to Navigation	127
7.6. Other Marine Services	128
References	130

BOXES

Box 1: “White Elephants” in Port Development	71
Box 2: Institutional Formats of Greenfield Ports	73
Box 3: Examples of Port Economic Multiplier Effects	74
Box 4: Value-Added Development Efforts in the Port of Rotterdam	75
Box 5: Strengths and Weaknesses of Port Management Models	84
Box 6: Basic Port Management Models	85
Box 7: Top 10 Carriers as of June 2006	86
Box 8: Global Terminal Operators 2005 Throughput League Table	87
Box 9: Portfolio of the Largest Terminal Operators as of June 2005	88
Box 10: Elements Influencing Interport Competition	90
Box 11: Overview of Value-Added Services in Ports	91
Box 12: Potential for VAL and VAF	92
Box 13: European Rules on Port Subsidies	94
Box 14: Categories of Port Assets	95
Box 15: Multiple Terminal Ownership in Sri Lanka	96
Box 16: Reasons for Pursuing Port Reform	99
Box 17: Creation of Commercialized Port Authorities in China	104
Box 18: The Port of Aqaba: Corporatization and Privatization	108
Box 19: The Experience of the Hanseatic Landlord Ports	110
Box 20: Spectrum of Port Reform Tools	111
Box 21: Comparison of Lease Systems	113
Box 22: BOT Schemes and Port Development	118
Box 23: San Martin-Rosario Waterway Concession	119
Box 24: Impetus behind Full Privatization in the United Kingdom	122
Box 25: Singapore Creates PSA Corporation	124
Box 26: The Creation of a National Pilotage Monopoly in the Netherlands	127
Box 27: Prevailing Service Providers under Different Port Management Models	129

Acknowledgments

This Second Edition of the Port Reform Toolkit has been produced with the financial assistance of a grant from TRISP, a partnership between the U.K. Department for International Development and the World Bank, for learning and sharing of knowledge in the fields of transport and rural infrastructure services.

Financial assistance was also provided through a grant from The Netherlands Transport and Infrastructure Trust Fund (Netherlands Ministry of Transport, Public Works, and Water Management) for the enhancement of the Toolkit's content, for which consultants of the Rotterdam Maritime Group (RMG) were contracted.

We wish to give special thanks to Christiaan van Krimpen, John Koppies, and Simme Veldman of the Rotterdam Maritime Group, Kees Marges formerly of ITF, and Marios Meletioui of the ILO for their contributions to this work.

The First Edition of the Port Reform Toolkit was prepared and elaborated thanks to the financing and technical contributions of the following organizations.

The Public-Private Infrastructure Advisory Facility (PPIAF)

PPIAF is a multi-donor technical assistance facility aimed at helping developing countries improve the quality of their infrastructure through private sector involvement. For more information on the facility see the Web site: www.ppiaf.org.

The Netherlands Consultant Trust Fund

The French Ministry of Foreign Affairs

The World Bank

International Maritime Associates (USA)

Mainport Holding Rotterdam Consultancy (formerly known as TEMPO), Rotterdam Municipal Port Management (The Netherlands)

The Rotterdam Maritime Group (The Netherlands)

Holland and Knight LLP (USA)

ISTED (France)

Nathan Associates (USA)

United Nations Economic Commission for Latin America and the Caribbean (Chile)

PA Consulting (USA)

The preparation and publishing of the Port Reform Toolkit was performed under the management of Marc Juhel, Ronald Kopicki, Cornelis "Bert" Kruk, and Bradley Julian of the World Bank Transport Division.

Comments are welcome.

Please send them to the World Bank Transport Help Desk.

Fax: 1.202.522.3223. Internet: Transport@worldbank.org

3

MODULE

Alternative Port Management Structures and Ownership Models

SECOND EDITION

1. OBJECTIVES AND OVERVIEW

This module, the third of eight comprising the World Bank's Port Reform Toolkit, lays out an array of alternative port management and control structures, and explains for each structure the respective roles most likely to be filled by the public and private sectors. It provides a framework for all of the modules by defining the characteristics of specific management structures and the tasks and responsibilities to be performed by private and public sector entities. In particular, it identifies the problems facing port managers when adapting their organizations to the challenges of today's global market place. The solutions and "tools" suggested in this module are adapted as much as possible to the port manager's specific situations. Examples have been included illustrating approaches that have been successful, as well as those that have been less than fully successful. This module also notes how ports have adjusted organizational and administrative arrangements due to the strategic shifts and competitive pressures affecting the maritime sector. These developments are described in more detail in Module 2.

Module 3 is organized into seven sections, and the following sections are summarized briefly below.

Evolution of Port Institutional Frameworks provides basic terms of reference and a conceptual framework for defining the respective roles of the public and private sectors in port manage-

ment. The section also describes a number of public interest issues affecting port planning, port operations, and infrastructure development.

Port Functions, Services, and Administration Models defines a number of typical management structures that ports use around the globe.

This section spells out the kinds of tasks that public ports undertake and defines for each of the alternative management structures ways in which discrete elements of these tasks are assigned to various parties.

Port Finance Overview focuses on the important subject of port funding, a topic that is dealt with at greater length in Modules 5 and 8. Here, the private sector plays an increasingly important role in providing funds for infrastructure development, in addition to paying for superstructure, equipment, and systems. This has not only a profound impact on management structures, but also on long-term public participation in port development. The analysis assesses various aspects of public versus private investments in infrastructure, including which components of infrastructure are paid for by the government or by the port authority, which investments should be made by the terminal operator, and how governments with limited funds can harness private funding for port-related investments. This section also analyzes the role global terminal operators—both shipping lines and stevedoring companies—play in today’s maritime sector and assesses their impact on port management and finance.

Port Reform Modalities presents an overview of various port reform options and describes the strengths and weaknesses of each. There are many ways to change the institutional structure of a port. Traditional methods of operating and management structures have been abandoned, with ports increasingly operating as commercial entities in the global marketplace. The process of structural change can be a painful one, with the potential for making costly mistakes. However, increasingly the international port community agrees on the structural role and function of port authorities. The global market has had a unifying influence on emerging institutional structures. The increasing influence of international finance institutions (IFIs) on port development also facilitates the introduction of efficient models and structures all over the world. Although there is still a large diversity of port management and organizational structures,

the trend toward several successful port management models is strong.

Reform Tools analyzes the various concession arrangements or tools available to port managers. The role of the public sector in financing port development is eroding and the private sector has assumed more responsibility, not only in port finance but also in port operations. This causes a gradual shift in the balance of power between the public sector and the private sector. It is not clear how far this shift will go, but it is evident that the balance is likely to be shifted from port to port and from country to country.

Marine Services and Port Reform analyzes traditional marine services in the context of port reform. Such services include activities that are carried out by both the public and private sector. Marine services ensure the safe and expeditious flow of vessel traffic in port approaches and harbors and a safe stay at berth or at anchor. In every port, the harbormaster (or port captain) is responsible for nautical safety and often also for the protection of the environment. Other services such as vessel traffic management, pilotage, and dangerous goods control are described as well. Finally, the section describes several possible reform approaches that can be applied to marine services.

Upon completing this module, the reader should have attained a better understanding of the various types of port management and ownership alternatives, their respective strengths and weaknesses, and of which alternatives might best fit a port’s particular circumstances.

2. EVOLUTION OF PORT INSTITUTIONAL FRAMEWORKS

Private sector investment and involvement in ports emerged as a significant issue in the 1980s. By this time, many ports had become bottlenecks to the efficient distribution chains of which they are an essential component. Three main problems, illustrated by port congestion and consequent chronic service failures, contributed to the gradual deterioration of service quality during this period.

The first problem was restrictive labor practices. Increasingly after World War II, antiquated work practices and methods for matching available labor with occasional work—practices that developed during a previous era characterized by breakbulk cargo handling—needed to be transformed and renegotiated to adjust to modern bulk handling methods, unitized handling, and containerization. All of these developments resulted in a rapid modernization of port handling equipment. At the start of this process, labor unions often refused to accept reductions in the labor force and ignored the need to upgrade skills. Later, however, unions realized that port reform was a necessity. Enlightened labor leaders accepted moderate reforms. As Module 7 describes in greater detail, it is no longer realistic for dock workers and their trade unions to oppose institutional reform and the technological advances that frequently precede and accompany it.

The second reason why many ports failed to respond adequately to the increased demands imposed on them was centralized government control in the port sector. Particularly between 1960 and 1980, central planning (in the port sector as well as in other sectors) prevailed not only as a norm in socialist economies, but also in many western and developing countries where national port authorities were often promoted by international development banks. Slow-paced and rigidly hierarchical planning, control, and command structures often accompanied central planning. Only in the 1980s did the dismantling of communist systems and the increasing introduction of market-oriented policies on a worldwide basis open the way for decentralized port management and for reduced government intervention in port affairs.

The third reason for a lack of port service quality was the inability or unwillingness of many governments to invest in expensive port infrastructure or the “misinvestment” in infrastructure (providing facilities that were badly matched with the needs of foreign trade and shipping). During this period, a number of beautifully constructed port complexes became “white elephants” when

expected demand failed to materialize (see Box 1). As a result of systemic failures in managing port development, governments have learned to rely increasingly on private investors to reduce ports’ reliance on state budgets and to spread investment risks through joint undertakings.

Box 1: “White Elephants” in Port Development

During its early years, the container terminal of the Port of Damietta in the Arab Republic of Egypt was often cited as a white elephant in port development. In the 1970s, the terminal was constructed and fully equipped to handle anticipated container transshipment requirements in the Eastern Mediterranean. Yet, for various reasons, the terminal was without any business for years. Only when the shipping company Scan-Dutch decided to change its Eastern Mediterranean port of call from Cyprus to Damietta did throughput start to increase sharply. Today, more than 25 years later, Damietta is one of the leading transshipment container ports in the region.

During the 1960s, major West European ports such as Rotterdam, Antwerp, and Marseilles developed large industrial sites near their port facilities. These sites became centers for refineries and petrochemical industries. In view of the apparent success of ports becoming industrial centers, the Dutch government created three regional ports to support the ailing economies of their respective regions. Two of these ports, Flushing and Terneuzen, developed fairly well. They are located along the River Scheldt in the vicinity of their large neighbors, Antwerp and Rotterdam. The third port was built along the River Eems near Germany, in the northern province of Groningen. Despite modern port facilities and large government subsidies, the Port of Eemshaven never became a success; it was too isolated and lacked an industrial hinterland. It struggled on for years to gradually develop a few niche markets. The case of Eemshaven shows that the creation of a new port does not guarantee success when there is no natural hinterland generating significant cargo flows and when the port does not attract large scale transshipment traffic.

Source: Author.

During this period, fundamental questions arose about the appropriate division of responsibilities between the public and private sectors. “Boundary line” issues came into sharp focus during the 1980s and 1990s. Policy makers became increasingly aware of the need for coordination among various branches of government and for consultation with diverse port interests. They realized clearly that port development had collateral consequences and effects on public interests in land use, environmental impact, job creation, and economic stimulation for economically blighted areas. Moreover, among some leaders, first in the United Kingdom and then gradually in other parts of the world, it became increasingly clear that large-scale government involvement in port operations was self-defeating and destructive of private initiative. They came to realize that the role of government in a market economy should focus on the provision of public goods (goods and services that the private sector has no adequate incentive to provide and, consequently, are undersupplied without some form of government intervention).

In many countries today, still another trend has emerged: the private provision of public services. Increasingly, governments have transferred public tasks to private contractors. Outsourcing of key functions and roles has had a major impact on redrawing traditional boundary lines in the port sector. Hence, in many ports today, the public sector mainly acts as planner, facilitator, developer, and regulator while providing connectivity to the hinterland, whereas the private sector acts as service provider, operator, and sometimes also developer.

Experimentation in shifting the boundary line that divides the public and private sectors has resulted in a healthy pragmatism. Today, best practice is more concerned with results than with ideology, and is intended to achieve:

- Increased service levels for infrastructure users.

- Increased efficiency in operations.
- Improved allocation of limited public funds.

At the same time, various types of port terminals have become highly specialized in the cargo handling services they provide and manifest fewer of the characteristics of a public good. New greenfield container terminals have been built with private capital, and other container terminals have been redeveloped and recapitalized through some form of private sector participation. Box 2 presents two of the institutional formats used in recent years to develop greenfield terminals.

Increasingly, ports are being integrated into global logistics chains, and the public benefits they provide are taking on regional and global attributes. The value of services provided by regional ports increasingly transcends the interests of local users, and benefits businesses and communities located beyond regional and national borders. This global diffusion of benefits poses some interesting challenges with respect to the need for large-scale investments in the sector. At the same time, as discussed in Module 2, private port service providers themselves have become increasingly global in scope and scale. Even more recently, a number of strategic alliances have formed both within the global shipping industry and the port services industry. These alliances have profound implications for the ways ports are financed, regulated, and operated. Confronted with these global shipping and port service powers, port authorities will increasingly have challenges in defending public and local interests. Container terminal operators with global coverage, sometimes in alliance with major shipping lines, may be tempted to take advantage of their dominant position to strengthen their network, thereby reducing the scope of competition mainly at the expense of public interests. Moreover, countervailing powers at an international level that have not yet emerged are expected to do so soon due to the absence of suitable national regulating structures. At port level, a strict organizational separation of the commercial and regulating tasks of port management is required to safeguard public interests.

Box 2: Institutional Formats of Greenfield Ports

Salalah, Oman

In 1997, Salalah Port Services (SPS) was awarded a 30-year concession to equip and operate the Port of Salalah in Oman. SPS is a joint venture with 30 percent foreign investment and 70 percent Omani government and public/private investment. The concession contract covers the container terminal, the conventional port, and the free trade zone.

Investment in the port originally consisted of the following proportions:

Omani government: 20 percent

Government pension funds: 11 percent

Sea-Land Services: 15 percent

Omani private investors: 19 percent

Public offering: 20 percent

Maersk/A.P. Moller: 15 percent.

The initial capitalization was \$260 million. The government built the infrastructure.

Vallarpadam, India

In August 2004, India's Cabinet Committee on Economic Affairs awarded Dubai Ports International (DPI) the contract to further develop the existing Rajiv Gandhi Container Terminal in Cochin (Kuchi) and build a new terminal at or nearby Vallarpadam Island.

The contract is on a BOT (build-operate-transfer) basis with total investment estimated at Rs 21.2 Bn (\$460 million). When completed, Vallarpadam will be able to handle vessels up to 8,000 TEU with 2,150 meters of berth and a throughput capacity of 3–4 million TEU.

DPI was announced as successful winner of the public tender by submitting the highest bid to share 30 percent of gross revenues with the Cochin Port Trust, which was subsequently negotiated down to 25 percent. The next highest bid was based on sharing 10 percent of revenues.

Vallarpadam will primarily compete with Colombo for share of regional transshipment traffic.

Source: Author and others.

inherently nondivisible and nonconsumable, such as public safety, security, and a healthy environment on the one hand, and coastal protection works necessary to create port basins on the other hand. Private goods are both consumable and divisible and their use entails a minimum of economic externalities.

Most of the value of private goods can be captured in market transactions between private parties. However, a substantial portion of the value of public goods cannot be captured in arms-length transactions. Consequently, private firms have little incentive to produce them. Public goods create positive externalities when they are used; the social benefits they generate are greater than the price that private parties can charge for them. Thus, some form of public intervention is appropriate in their production to make certain that an adequate level of public goods is maintained.

Ports represent a mix of public and private goods. They generate direct economic benefits (private goods) through their operations, as well as additional indirect benefits (public goods) in the form of trade enhancement, second order increases in production volumes, and collateral increases in trade-related services. These “economic multiplier effects” have been used by many ports to justify direct public sector investment. It is in this dual production of both public and private goods that complexities arise, which makes defining roles for and boundaries between the public and private sectors challenging in the ports industry. This is particularly the case in the fields of marine and port safety, port security, and the protection of the marine environment. Box 3 lists a number of areas where ports generate economic multiplier effects.

Both through targeted development policies and the unplanned growth of interrelated industries, many ports have become the location for industrial clusters. Industrial clusters are geographic concentrations of private companies that may compete with one another or complement each other as customers and suppliers in specialized areas of production and distribution. Industrial

3. PORT FUNCTIONS, SERVICES, AND ADMINISTRATION MODELS

Ports produce a combination of public and private goods. Public goods include those that are

Box 3: Examples of Port Economic Multiplier Effects

- Petro-chemical industry.
- Value-added services.
- Repair and maintenance.
- Packing and repacking.
- Labeling.
- Testing.
- Telecommunications.
- Banking.
- Customs.
- Inland transport.
- Warehouse and distribution.
- Ship chandlery.
- Cleaning and laundry.

Source: Author.

clusters represent a kind of value chain, a web of interrelated activities that are mutually supportive and continuously growing. Clustering of related activities improves the competitive advantage of cluster participants by increasing their productivity, reducing transaction costs among them, driving technological innovation, and stimulating the formation of new business spin-offs.

Large ports offer particularly attractive locations for seed industries and distribution-intensive enterprises. Several notable port-centered industrial clusters have developed over the last 50 years, for instance, those in Dubai, Colon, Norfolk, Rotterdam, Yokohama, Antwerp, Hamburg, Marseilles, and Houston, to name but a few. From the 1950s, the larger European ports targeted refineries and chemical industries for colocation and codevelopment, with considerable success. Thus, for example, a large cluster of five refineries and many chemical-processing companies located in the Port of Rotterdam as a direct result of public policies developed in 1950s. A cluster of world-class, specialized marine services likewise established themselves in the Port of Rotterdam as a result of the good hinterland connections and the gas and oil finds in the North Sea. Another example of cluster

development is the Port of Colombo; a fashion goods and apparel industry cluster has developed around Colombo, which focuses on reliable, short-transit container services to complete just-in-time (JIT) purchase orders. This development was business-driven and not the direct result of explicit public policy. The lesson demonstrated in Colombo is that quasi-public goods in the form of efficient industrial networks can be created and developed through private initiatives.

As a matter of strategic development policy, many ports encourage the codevelopment of various value-added services through franchising, licensing, and incentive leasing. Today, ports seek to attract enterprises that extend their logistics chains or provide them with specialized capabilities to add value to cargoes that are stored and handled in the port. General services that many ports attempt to develop include chandlery, ship repair, container maintenance, marine appraisals, insurance claims inspections, and banking. Box 4 describes the efforts of one port to expand and develop its ensemble of value-added services.

Many governments are directly or indirectly involved in port development. They often use a “growth pole” argument to justify the direct financing of basic port infrastructure. This growth pole rationale derives from the belief that investments in port assets have strong direct and indirect multiplier effects on the entire national economy and, further, that the commitment of public resources is necessary to encourage coinvestment by the commercial and industrial sectors. These sectors are thus stimulated to make investments that they would not make in the absence of public seed investment in port infrastructure. However, determining causal links between public investment and specific commercial activities and investments is difficult and at times speculative. Still, it is important that governments envision and articulate future development scenarios, maintain frequent consultation with the private sector, and implement public policies that are applied consistently and that enable the private sector

Box 4: Value-Added Development Efforts in the Port of Rotterdam**Distriparks**

Distriparks are the Port of Rotterdam's response to the growing demands on shippers and transport firms for just-in-time delivery at lower costs. Distriparks are advanced logistics parks with comprehensive facilities for distribution operations at a single location close to the cargo terminals and multimodal transport facilities for transit shipment. They employ the latest information and communications technology.

Distriparks provide space for warehousing and forwarding facilities, including the storage and handling of cargo and the stuffing and stripping of containers. They also offer a comprehensive range of value-added services.

In distriparks, companies can, either on their own or in partnership with local specialist firms, process their goods according to specific customer and country-of-destination requirements. These value-added services include packing and repacking, labeling and assembly, sorting, and invoicing. The distripark's on-site customs service promptly handles import and export documentation.

To date, three distriparks have been established within the Port of Rotterdam area.

Source: Port of Rotterdam

boundary line is drawn between the public and private sectors. At one end of this spectrum, full public control over planning, regulation, and operations results in a “service port.” At the other end, the almost total absence of public ownership, control, or regulatory oversight results in a “fully privatized port.”

In a clear trend, the alignment of public and private interests in recent years has resulted in a diminishing role for governments in the port industry. The total absence of public involvement in the port sector, however, still remains an exception, limited primarily to specialized ports and terminals.

When governments attempt to increase national economic welfare through port development, they may choose to apply one of two distinct normative frameworks: the market surrogate framework or the public interest framework. In seeking to increase economic welfare, governments may attempt to remedy market imperfections and capture nonmarket externalities within appropriately engineered and contested transactions. Alternatively, they may pursue explicit goals developed through public consultative processes designed to determine demand for public goods.

With respect to the market surrogate framework, the primary task of government is to identify and eliminate market imperfections and anticompetitive behavior or to regulate its undesired effects. For example, competition “for the market” can replace competition “in the market,” and competition “for the market” can be engineered into contestable offers of rights in ways that assure procompetitive outcomes.

It follows that one of the objectives of public policy should be to create contestable market structures for port services and to manage competitive behavior. This might be accomplished through licensing, leasing, concessioning, or other methods designed to bring about an efficient allocation of resources. The market surrogate view is followed in most countries with market-oriented economic policies.

to invest with confidence in projects that support the stated public policy objectives.

On the other hand, port operations are businesses in their own right and should be managed to achieve optimal utilization of capital. Investments in port assets are affected by risk, competition for land and capital, or other factors in the competitive business environment. Subsidies and government-provided incentives distort the allocation of resources for port development and may result in over- or under-investment.

It is the delicate alignment of public and private interests that determines the structure of port management and port development policy. A full spectrum of institutional frameworks is available, differing primarily in where the

The need for some form of government intervention in markets for port services is related to the unique economic characteristics of seaports, some of which tend to make them natural monopolies:

- The provision of port services entails large fixed costs and low marginal costs. The marginal benefits associated with using port services exceed the marginal costs of providing these services.
- A relatively large, minimum initial capacity of basic infrastructure is required for technical reasons.
- The infrastructure is frequently indivisible and, as a result, increases in infrastructure capacity can only be realized in “quantum chunks.”
- Both initial construction and port expansion require large amounts of capital. As a result, the need to develop basic port infrastructure (for example, sea locks, breakwaters, quay walls, and main roads) all at one time creates large capital operating losses and foregone investment opportunities as a result of underused capacity during the earlier phases of a project’s life cycle.
- The life span of port infrastructure projects often exceeds the time horizon acceptable for private investors and commercial banks.
- Basic port infrastructure is immobile and has few alternative uses.

This set of characteristics is the main reason for financial involvement of governments in port construction and expansion projects.

3.1. Interaction with Port Cities

Ports and the cities of which they are a part interact across many dimensions: economic, social, environmental, and cultural. Any port reform process should take into account the linkages between city objectives and the port objectives. Transport integration—the smooth transfer of cargo and equipment from land to

water-borne systems—is an essential port function, but it does not take place in isolation. A seaport node within a multimodal transport system is frequently associated with the development of an urban center and generates substantial employment, industrial activity, and national and regional development.

Many big cities trace their roots to the establishment of a port. This does not mean, however, that the port will be extended at the place where it was originally founded. Antwerp and Rotterdam are examples of ports that developed relatively close to the cities’ central cores. Over time, however, they shifted operations away from city centers. The underlying reason was the increase in ship sizes (requiring deeper drafts and longer berths). Another reason contributing to the weakening of links between port and city centers is the rapid mechanization and specialization of port work and the accompanying increase in the operational scale and scope. These shifts led to increased storage space requirements and make ports very space-intensive.

Another factor is the rapid industrialization of most developed country cities. The new industries emerging after World War II required large areas of land, preferably close to deep water, which often could not be found within the original port borders. Therefore, Maritime Industrial Development Areas (MIDAs) were located at some distance from old city centers.

Technological changes and consequential port relocation have left substantial areas available for redevelopment for other purposes. Such areas are often located near city centers because that is where the port (and city) began. Therefore, land values are potentially high, although probably depressed prior to redevelopment because of the presence of decaying port facilities.

Three approaches commonly have been used for the development of surplus port land:

- Retaining it within the port authority for redevelopment as in the case of the Port

of Barcelona. This implies a widening of the port's function from that of a port into a property developer. Such change may require modifications to the statutes of the public port authority, or of the trust port. The experience of Associated British Ports shows that when the port is in private hands, it is capable of effective development of surplus lands. The Port Authority of New York and New Jersey is an example of a public port authority with wide redevelopment powers.

- Transferring it to the local authority or municipality for redevelopment. In practice this is not always effective because the municipality might lack the resources to realize the full value of the land in question. On the other hand, there are examples (such as Baltimore and Rotterdam) of successful regeneration by the municipality of port lands near the city center.
- Creating a special development corporation for the specific purpose of redeveloping an old dock area. This is most appropriate when the area is very extensive, involves various municipalities, and involves high redevelopment costs. An example of a separate corporation established for this purpose is the Puerto Madera Corporation in Argentina, which is a joint venture by the City of Buenos Aires and the national government for the redevelopment of old city docks for mixed commercial, residential, and recreational use. Probably the biggest and best-known special purpose corporation (SPC) is the London Docklands Development Corporation (LDDC), created to redevelop the old docks of the Port of London. The LDDC was established by the government and endowed with extensive planning powers as a result of the inability of six riparian municipalities to agree on a coherent and feasible plan for the docks' redevelopment.

Finally, the interests of ports extend beyond local traffic and transport. Hinterland connections,

nationally and internationally, rely on road, rail, and waterway links. Both the port authority and the port city should use their influence to establish needed intermodal infrastructure and agreements. In addition, the port authority and the port city should collaborate to efficiently accommodate traffic flows and limit transport costs (including external costs).

3.2. Role of a Port Authority

Ports usually have a governing body referred to as the port authority, port management, or port administration. Port authority is used widely to indicate any of these three terms.

The term port authority has been defined in various ways. In 1977, a commission of the European Union (EU) defined a port authority as a "State, Municipal, public, or private body, which is largely responsible for the tasks of construction, administration and sometimes the operation of port facilities and, in certain circumstances, for security." This definition is sufficiently broad to accommodate the various port management models existing within the EU and elsewhere.

Ports authorities may be established at all levels of government: national, regional, provincial, or local. The most common form is a local port authority, an authority administering only one port area. However, national port authorities still exist in various countries such as Tanzania, Sri Lanka, Nigeria, and Aruba.

The United Nations Conference on Trade and Development (UNCTAD) *Handbook for Port Planners in Developing Countries* lists the statutory powers of a national port authority as follows (on the assumption that operational decisions will be taken locally):

- *Investment:* Power to approve proposals for port investments in amounts above a certain figure. The criterion for approval would be that the proposal was broadly in accordance with a national plan, which the authority would maintain.
- *Financial policy:* Power to set common financial objectives for ports (for example,

required return on investment defined on a common basis), with a common policy on what infrastructure will be funded centrally versus locally, and advising the government on loan applications.

- *Tariff policy:* Power to regulate rates and charges as required to protect the public interest.
- *Labor policy:* Power to set common recruitment standards, a common wage structure, and common qualifications for promotion; and the power to approve common labor union procedures.
- *Licensing:* When appropriate, power to establish principles for licensing of port employees or agents.
- *Information and research:* Power to collect, collate, analyze, and disseminate statistical information on port activity for general use, and to sponsor research into port matters as required.
- *Legal:* Power to act as legal advisor to local port authorities.

Increasingly, central governments implement seaport policies through the allocation of resources rather than through the exercise of wide-ranging regulatory powers.

While central governments should pursue macroeconomic objectives through an active seaport policy, port authority objectives should be more narrowly focused on port finances and operations.

It is a widely accepted opinion among port specialists that a port authority should have as a principal objective the full recovery of all port-related costs, including capital costs, plus an adequate return on capital. The full recovery of costs will help a port authority to:

- Maintain internal cost discipline.
- Attract outside investment and establish secure long-term cash flows.
- Stimulate innovation in the various functional areas to guarantee a long-term

balance between costs and revenues, especially when faced with innovations by terminal operators, port users, rival ports, and hinterland operators.

- Generate internal cash flows needed to replace and expand port infrastructure and superstructure.
- Compete according to the rules of the market system, without excessive distortions of competition.
- Put limits on cross-subsidization, which may be rational from a marketing point of view (market penetration, traffic attraction), but which can undermine financial performance.
- Avoid dissipation of the port authority's asset base to satisfy objectives of third parties (for example, port users demanding the use of land in the port area without regard to the land's most economic use or port and city administrations using port authority assets to pursue general city goals).

Full cost recovery should be viewed as a minimum port authority objective; once this objective has been achieved, however, the port authority can pursue other-than-financial objectives considered desirable by the government or by itself.

3.3. Role of Port Operators

Just as central governments and port authorities play key roles in the port communities, so too do private port operators (such as stevedoring firms, cargo handling companies, and terminal operators). Port operators typically pursue conventional microeconomic objectives, such as profit maximization, growth, and additional market share. Only if port operators are free to pursue such objectives can the benefits of a market-oriented system be achieved.

3.4. Roles of a Transport Ministry

In a market-oriented economic system, the ministry of transport typically performs a variety of functions at a national level. With respect to

coastline and port issues, the main tasks and responsibilities of the ministry can be summarized as follows:

- *Policy making:* The ministry develops transport and port policies related to:
 - ~ Planning and development of a basic maritime infrastructure, including coast-line defenses (shore protection), port entrances, lighthouses and aids to navigation, and navigable sea routes and canals.
 - ~ Planning and development of existing and new port areas (location, function, or type of management).
 - ~ Planning and development of port hinterland connections (roads, railways, territorial waterways, and pipelines).
- *Legislation:* The ministry drafts and implements transport and port laws, national regulations, and decrees. It is responsible for incorporating relevant elements of international conventions (for example, the International Convention of Safety for Life at Sea [SOLAS], United Nations Convention on the Law of the Sea, the International Convention for the Prevention of Pollution from Ships [MARPOL]) into national legislation for signature members.
- *International relations:* Specialized departments of the ministry represent the country in bilateral and multilateral port and shipping forums. The ministry may also negotiate agreements with neighboring countries relating to water-borne or intermodal transit privileges.
- *Financial and economic affairs:* A ministerial department is usually responsible for planning and financing national projects. In many countries, a ministry of transport also finances basic port infrastructure as well as roads, waterways, and railways connecting ports with their hinterland. It should be able to carry out financial and economic analyses and assess the socioeconomic and financial feasibility of projects in the context of national policies and priorities.

- *Auditing:* These functions should be performed independently from the affected line organization and are usually included in a staff office. The auditors should report directly to the minister.

In many countries, transport directorates are established as independent bodies within a ministry and perform an executive function. They are usually responsible for one of the modes of transport, for example, the maritime and ports directorate (maritime administration). The principal elements of a typical maritime and ports directorate are:

- Ship inspections and register of shipping (oversight of ship safety and manning conditions).
- Traffic safety and environment (safe movement of shipping and protection of the marine environment).
- Maritime education and training (maritime academies, merchant officers exams, and licensing of seafarers).
- Ports (execution of national port policy).
- Hydrotechnical construction (construction of protective works, sea locks, port entrances, and others).
- Port state control on the basis of the Paris and Tokyo memorandum of understanding terms.
- Security compliance (International Ship and Port Facility Security Code).
- Investigation into and adjudication of any maritime incident, such as fire on board a vessel, collision, stranding, piracy, or similar event.
- Performance of regulatory and licensing functions in respect to structures, partly or entirely founded on the seabed within the territorial waters, in the exclusive economic zone of a country, or in any navigable water or on any beach within the territory of a country.

- Vessel traffic systems and aids to navigation (construction and maintenance).
- Search and rescue.

3.5. Port Functions

Within the port system, one or more organizations fill the following roles:

- Landlord for private entities offering a variety of services.
- Regulator of economic activity and operations.
- Regulator of marine safety, security, and environmental control.
- Planning for future operations and capital investments.
- Operator of nautical services and facilities.
- Marketer and promoter of port services and economic development.
- Cargo handler and storer.
- Provider of ancillary activities.

In view of the strategic significance of land, port property is rarely sold outright to private parties because of its direct and indirect effects on regional and often national economy and public welfare, its intrinsic value, and possible scarcity. Therefore, a key role for many port authorities is that of the landlord with the responsibility to manage the real estate within the port area. This management includes the economic exploitation, the long-term development, and the upkeep of basic port infrastructure, such as fairways, berths, access roads, and tunnels.

Port authorities often have broad regulatory powers relating to both shipping and port operations. The authority is responsible for applying conventions, laws, rules, and regulations. Generally, as a public organ it is responsible for observance of conventions and laws regarding public safety and security, environment, navigation, and health care. Port authorities also issue port bylaws, comprising many

rules and regulations with respect to the behavior of vessels in port, use of port areas, and other issues. Often, extensive police powers are also assigned to the port authority.

The planning function of the port authority in coordination with the municipality is a complicated affair, especially for large ports located within or near a city. The port planner has to consider:

- The consistency of plans with the general terms of land use that have been set by the competent authority.
- The impact of port development proposals on the immediate surroundings (environment, traffic, facilities, and roads).
- The appropriateness of port development proposals in the context of international, national, and regional port competition.

Actual port services and balancing of supply and demand occur at the levels of the port authority and individual port firms. Hence, the development of realistic investment projects for infrastructure and superstructure should be initiated at these levels. Investment plans of industrial and commercial port operators or projects for specific cargo handling, storage, and distribution should be integrated at the level of the port authority to arrive at a strategic master plan for the port. The individual master plans may then be integrated into a national seaport policy, taking into account macroeconomic considerations. Integration of individual master plans will help to avoid duplication of expensive, technologically advanced facilities when different ports in a national system strive to attract the same customers as well as ensure the selection of the appropriate locations for specific seaport facilities that will interconnect maritime and land transport systems.

To conclude, central governments should establish a national port policy that supports national economic objectives and creates a reasonable framework for port development. The development of plans for specific port projects, however, should remain in the hands of port operators.

Oversight of nautical operations should be within a port authority's mandate and is often referred to as the harbormaster's function. It generally comprises all legal and operational tasks related to the safety and efficiency of vessel management within the boundaries of the port area. The harbormaster's office allocates berths and coordinates all services necessary to berth and unberth a vessel. These services include pilotage, towage, mooring and unmooring, and vessel traffic services (VTS). Often, the harbormaster is also charged with a leading role in management of shipping and port-related crises (for example, collisions, explosions, natural disasters, or discharge of pollutants). In view of its general safety aspects, the harbormaster's function has a public character.

The cargo handling and storage function comprises all activities related to loading and discharging seagoing and inland vessels, including warehousing and intraport transport. A distinction typically is made between cargo handling on board of the vessel (stevedoring) and cargo handling on shore (landside or quay handling). Terminal operators can fulfill both roles.

There are typically two types of cargo handling and terminal operating firms. The more common structure for terminal operating firms is a company that owns and maintains all superstructures at the terminal (for example, paving, offices, sheds, warehouses, and equipment). Other firms only use the superstructure or equipment that is owned by the port. Such firms typically only employ stevedores or dock workers and have virtually no physical assets.

The port marketing and promotion function is a logical extension of the port planning function. Port marketing is aimed at promoting the advantages of the entire port complex for both the port authority to attract new clients and for the port industry to generally promote its business. This type of broad marketing is distinct from customer-oriented marketing that is aimed at attracting specific clients and cargoes for specific terminals or services.

A variety of ancillary functions such as pilotage, towage and ship chandlery, fire protection

services, linesmen services, port information services, and liner and shipping agencies exist within the port community. Large port authorities usually do not provide these services, with the possible exception of pilotage and towage. In a number of smaller ports, however, these are part of the port authority operations because of the limited traffic base.

3.6. Port Administration Models

A number of factors influence the way ports are organized, structured, and managed, including:

- The socioeconomic structure of a country (market economy, open borders).
- Historical developments (for example, former colonial structure).
- Location of the port (urban area or in isolated regions).
- Types of cargoes handled (liquid and dry bulk, general cargo, or containers).

Four main categories of ports have emerged over time, and they can be classified into four main models: the public service port, the tool port, the landlord port, and the fully privatized port or private service port.

These models are distinguished by how they differ with respect for such characteristics as:

- Public, private, or mixed provision of service.
- Local, regional, or global orientation.
- Ownership of infrastructure (including port land).
- Ownership of superstructure and equipment (particularly ship-to-shore handling equipment, sheds, and warehouses).
- Status of dock labor and management.

Service and tool ports mainly focus on the realization of public interests. Landlord ports have a mixed character and aim to strike a balance between public (port authority) and private (port industry) interests. Fully privatized ports focus on private (shareholder) interests.

3.6.1. Service Ports

Service ports have a predominantly public character. The number of service ports is declining. Many former service ports are in transition toward a landlord port structure, such as Colombo (Sri Lanka), Nhava Sheva (India), and Dar es Salaam (Tanzania). However some ports in developing countries are still managed according to the service model. Under it, the port authority offers the complete range of services required for the functioning of the seaport system. The port owns, maintains, and operates every available asset (fixed and mobile), and cargo handling activities are executed by labor employed directly by the port authority. Service ports are usually controlled by (or even part of) the ministry of transport (or communications) and the chairman (or director general) is a civil servant appointed by, or directly reporting to, the minister concerned.

Among the main functions of a service port are cargo handling activities. In some developing country ports, the cargo handling activities are executed by a separate public entity, often referred to as the cargo handling company. Such public companies usually report to the same ministry as the port authority. To have public entities with different and sometimes conflicting interests reporting to the same ministry, and forced to cooperate in the same operational environment, constitutes a serious management challenge. For this reason, the port authorities and cargo handling companies of Mombasa, Kenya, and Tema and Takoradi, Ghana, were merged into one single entity.

3.6.2. Tool Ports

In the tool port model, the port authority owns, develops, and maintains the port infrastructure as well as the superstructure, including cargo handling equipment such as quay cranes and forklift trucks. Port authority staff usually operates all equipment owned by the port authority. Other cargo handling on board vessels as well as on the apron and on the quay is usually carried out by private cargo handling firms contracted by the shipping agents or other principals

licensed by the port authority. The Port of Chittagong (Bangladesh) is a typical example of the tool port. The *Ports Autonomes* in France are also examples, in particular the container terminals, which are managed and operated along the principles of the tool port, although for more recent terminals the private terminal operators have made the investment in gantry cranes. This arrangement has generated conflicts between port authority staff and terminal operators, which has impeded operational efficiency.

The above-mentioned division of tasks within the tool port system clearly identifies the essential problem with this type of port management model: split operational responsibilities.

Whereas the port authority owns and operates the cargo handling equipment, the private cargo handling firm usually signs the cargo handling contract with the shipowner or cargo owner. The cargo handling firm however, is not able to fully control the cargo handling operations itself. To prevent conflicts between cargo handling firms, some port authorities allow operators to use their own equipment (at which point it is no longer a true tool port). The tool port has a number of similarities to the service port, both in terms of its public orientation and the way the port is financed.

Under a tool port model, the port authority makes land and superstructures available to cargo handling companies. In the past, these companies tended to be small, with few capital assets. Their costs were almost entirely variable. The cost of underuse of port facilities was usually absorbed by the port authority, which minimized risk for the cargo handling companies. Often, the provision of cargo handling services was atomized, companies were small with activity fragmented over many participants. The lack of capitalization of the cargo handling companies constituted a significant obstacle to the development of strong companies that could function efficiently in the port and be able to compete internationally.

However, with the above in mind, a tool port does have its advantages, particularly when it is

used as a means of transition to a landlord port. Using the tool port model as a catalyst for transition can be an attractive option in cases where the confidence of the private sector is not fully established and the investment risk is considered high. A tool port may mitigate this by reducing initial capital investment requirements. Another example could include a government looking to expedite port reform initiatives, but requires extensive amounts of time for legal statutes to be established. Laws and regulations for establishing a tool port may be less extensive since no state assets are being transferred to the private sector, and therefore make it an easier model to adopt in the first phase of reform.

3.6.3. Landlord Ports

As noted, the landlord port is characterized by its mixed public-private orientation. Under this model, the port authority acts as regulatory body and as landlord, while port operations (especially cargo handling) are carried out by private companies. Examples of landlord ports are Rotterdam, Antwerp, New York, and since 1997, Singapore. Today, the landlord port is the dominant port model in larger and medium-sized ports.

In the landlord port model, infrastructure is leased to private operating companies or to industries such as refineries, tank terminals, and chemical plants. The lease to be paid to the port authority is usually a fixed sum per square meter per year, typically indexed to some measure of inflation. The level of the lease amount is related to the initial preparation and construction costs (for example, land reclamation and quay wall construction). The private port operators provide and maintain their own superstructure including buildings (offices, sheds, warehouses, container freight stations, workshops). They also purchase and install their own equipment on the terminal grounds as required by their business. In landlord ports, dock labor is employed by private terminal operators, although in some ports part of the labor may be provided through a portwide labor pool system.

3.6.4. Fully Privatized Ports

Fully privatized ports (which often take the form of a private service port) are few in number, and can be found mainly in the United Kingdom (U.K.) and New Zealand. Full privatization is considered by many as an extreme form of port reform. It suggests that the state no longer has any meaningful involvement or public policy interest in the port sector. In fully privatized ports, port land is privately owned, unlike the situation in other port management models. This requires the transfer of ownership of such land from the public to the private sector. In addition, along with the sale of port land to private interests, some governments may simultaneously transfer the regulatory functions to private successor companies. In the absence of a port regulator in the U.K., for example, privatized ports are essentially self-regulating. The risk in this type of arrangement is that port land can be sold or resold for nonport activities, thereby making it impossible to reclaim for its original maritime use. Moreover, there is also the possibility of land speculation, especially when port land is in or near a major city. Furthermore, sale of land to private ports may also sometimes raise a national security issue.

The U.K. decided to move to full privatization for three main reasons:

- To modernize institutions and installations, both of which often dated back to the early years of the industrial revolution, to make them more responsive to the needs and wishes of the users.
- To achieve financial stability and financial targets, with an increasing proportion of the financing coming from private sources.
- To achieve labor stability and a degree of rationalization, followed by a greater degree of labor participation in the new port enterprises.

Box 5 summarizes the strong and weak points of the principal port management models. Box 6 outlines the sectors (public or private) and their various responsibilities under the four basic port management models.

Box 5: Strengths and Weaknesses of Port Management Models**Public Service Port****Strength:**

- Superstructure development and cargo handling operations are the responsibility of the same organization (unity of command).

Weaknesses:

- There is no role or only a limited role for the private sector in cargo handling operations.
- There is less problem solving capability and flexibility in case of labor problems, since the port administration also is the major employer of port labor.
- There is lack of internal competition, leading to inefficiency.
- Wasteful use of resources and underinvestment as a result of government interference and dependence on government budget.
- Operations are not user or market oriented.
- Lack of innovation.
- No or limited access to public funds for basic infrastructure.

Tool Port**Strength:**

- Investments in port infrastructure and equipment (particularly ship/shore equipment) are decided and provided by the public sector, thus avoiding duplication of facilities.

Weaknesses:

- The port administration and private enterprise jointly share the cargo handling services (split operation), leading to conflicting situations.
- Private operators do not own major equipment, therefore they tend to function as labor pools and do not develop into firms with strong balance sheets. This causes instability and limits future expansion of their companies.
- Risk of underinvestment.
- Lack of innovation.

Landlord Port**Strengths:**

- A single entity (the private sector) executes cargo handling operations and owns and operates cargo handling equipment. The terminal operators are more loyal to the port and more likely to make needed investments as a consequence of their long-term contracts.
- Private terminal handling companies generally are better able to cope with market requirements.

Weakness:

- Risk of overcapacity as a result of pressure from various private operators.
- Risk of misjudging the proper timing of capacity additions.

Fully Privatized Port**Strengths:**

- Maximum flexibility with respect to investments and port operations.
- No direct government interference.
- Ownership of port land enables market-oriented port development and tariff policies.
- In case of redevelopment, private operator probably realizes a high price for the sale of port land.
- The often strategic location of port land may enable the private operator to broaden its scope of activities.

Weaknesses:

- Government may need to create a port regulator to control monopolistic behavior.
- The government (national, regional, or local) loses its ability to execute a long-term economic development policy with respect to the port business.
- In case the necessity arises to redevelop the port area, government has to spend considerable amounts of money to buy back the port land.
- There is a serious risk of speculation with port land by private owners.

Source: A. Baird and P. Kent (2001).

3.7. Globalization of Terminal Operations

Port authorities are increasingly confronted with the globalization of terminal operations. During the 1990s, a number of terminal operators and

major shipping lines merged to invest in and take control of a large number of terminals all over the world. This trend has far reaching consequences for the strategic position of port management in relation to some of their major clients.

Box 6: Basic Port Management Models

Type	Infrastructure	Superstructure	Port labor	Other functions
Public service port	Public	Public	Public	Majority public
Tool port	Public	Public	Private	Public/private
Landlord port	Public	Private	Private	Public/private
Private service port	Private	Private	Private	Majority public

Source: Author.

This trend toward globalization has affected mainly containerized operations. Today, a handful of major carrier alliances and independent terminal operators increasingly dominate the major global container trades. The global carriers have sought to secure their competitive positions by concluding long-term contracts for dedicated container terminals in major, strategically located ports. Their reasoning is that they believe they need to control all stages of the transport chain to remain competitive. These efforts to establish integrated transport chains pose a challenge for port authorities in their relations with the larger carriers. For example, how should a port respond if a large container operator demands to operate a dedicated terminal and threatens to leave the port when it does not get its way?

It should be emphasized that full control of the transport and logistics chain by one consortium (a global monopolist) is not a desirable development. Because of regulatory measures by the United States and the EU, the complexity of the transport and logistics chain, and the number of players, a carrier's ability to control of the full chain seems like an illusion. However, some alliances may attain a significant degree of market dominance. Box 7 lists the fleets of the major container carriers, showing the number of vessels operated, the capacity expressed in TEUs, and the number of vessels under construction.

The container shipping market is still much commoditized compared to other industries (energy, rail, and the like) with global market shares of the largest carrier not exceeding 18–19 percent (2005). However, the carrier industry, as

well as the terminal operator industry, is moving toward greater consolidation and larger global players and operators are emerging.

Competition between major carriers is intense. The scale of investment in a new generation of container vessels represents a massive commitment. To fill these vessels, the carriers try to secure local control and coordination over inland cargo haulage and feeder operations. In this way, they try to secure their market share and meet perceived service needs. Port handling charges are considered as being of secondary importance in achieving these goals.

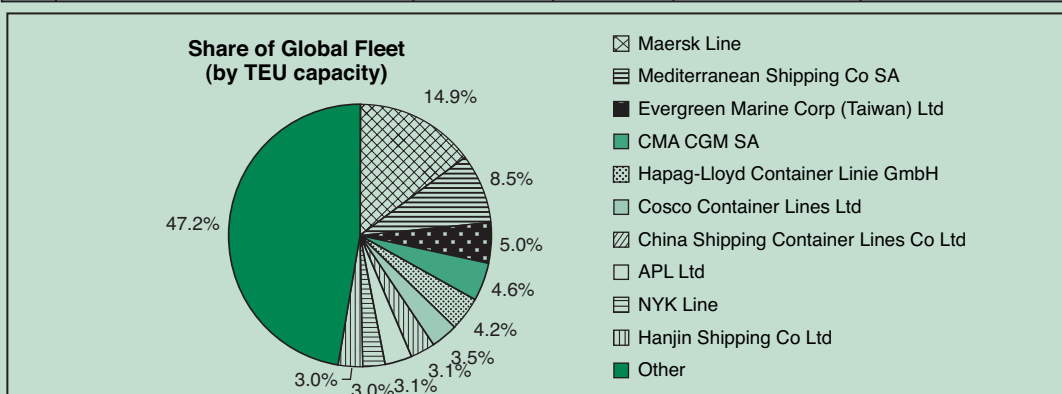
Relationships between ports and carriers fall into four broad categories:

- First are ports that face strong interport competition in the container handling sector. Container lines may easily shift operations to other ports if their financial and operational demands are not met. To attract major container lines, the port authority may offer them dedicated facilities while other, smaller lines are accommodated at common user terminals. Without such dedicated facilities, major lines could move to other competing ports. Examples of this category are the Ports of Yokohama and Long Beach.
- Second are ports that derive the bulk of their business from a major container line, and therefore, are dominated by this client. If the dominant line were to abandon the port, 80–90 percent of the traffic could be lost. Examples of such ports are Algeciras and Salalah.

Box 7: Top 10 Carriers as of June 2006

Top Ten Container Carriers as of June 2006

Rank	Carrier	Current TEU Capacity	% of Global Fleet	Current Operating Vessels	Vessels Under Construction/Contract
1	Maersk Line	1,566,352	14.9%	519	102
2	Mediterranean Shipping Co SA	892,548	8.5%	297	24
3	Evergreen Marine Corp (Taiwan) Ltd	530,172	5.0%	193	24
4	CMA CGM SA	486,453	4.6%	189	56
5	Hapag-Lloyd Container Linie GmbH	437,954	4.2%	136	10
6	Cosco Container Lines Ltd	369,531	3.5%	128	20
7	China Shipping Container Lines Co Ltd	328,245	3.1%	95	19
8	APL Ltd	325,919	3.1%	104	27
9	NYK Line	315,865	3.0%	117	25
10	Hanjin Shipping Co Ltd	313,698	3.0%	78	17
	Other	4,980,735	47.2%		
	Total Global Fleet	10,547,472		8,024	1,108



Source: Author.

- Third are ports where, although no single shipping line may dominate the port's traffic volume, there is a possibility for that line to pressure the port authority into accepting a dedicated terminal because of competition for transit traffic in the larger region. An example of this type of port is Miami, which is a hub for the Caribbean and Central and South America. Competitors include Kingston (Jamaica) and Freeport (The Bahamas). As the competitive positions of these ports improve, carriers may increase pressure on Miami to grant dedicated terminals.
- Fourth are major world ports such as Shanghai, Hong Kong, Singapore, and Rotterdam. Such ports have a very well-developed container sector. Initially, these ports resisted pressures from shipping lines to accept dedicated terminals.

However in Rotterdam, the large Europe Container Terminal (ECT) has been acquired by Hutchison Port Holdings (HPH), which was obliged by the European Commission to sell ECT a 33 percent share in the Maersk Delta Terminal. Also at Maasvlakte (Rotterdam), P&O Nedlloyd started the construction of its Euromax Terminal, which is expected to be operational in 2008. Thus the Port of Rotterdam currently accommodates a mix of dedicated and common user terminals. In Antwerp, developments are similar.

The Port of Singapore did not meet the requests of Maersk Line, which resulted in the carrier initiating the development of the nearby Malaysian Port of Tanjung Pelepas with its affiliate A. P. Moller Terminals, which conducts business under the name APM Terminals.

However, in this particular case it should be noted that the container operations in Singapore are carried out by PSA Corporation, which itself is competing globally in the container terminal market.

The changes in terminal management are fast. Container lines may use a common user terminal with the advantage that they can switch easily to a competing facility when the need arises, which has competitive advantages. On the other hand, major container carriers are increasingly interested in securing berth and throughput capacity, with the larger ones aiming at operating their own dedicated terminals directly or through affiliated global terminal operators. Strategic alliances between global terminal operators and major container lines are likely to continue in the near future.

With such consolidation and alliances increasing in the industry, there is the growing concern of dominant market shares or monopolies or oligopolies developing at both local and regional levels. Governments should be aware of these trends and the impacts.

Apart from the major container lines, a number of global terminal operators have also emerged during the 1990s and the top 10 have distanced

themselves from the rest of the market over the last three to five years (see Box 8). These companies operate a large number of terminals all over the world. Their main objective is not to control the transport chain, but to make a profit by offering terminal services. However, when too many terminals within a region are controlled by one operator, the competent authority or government agency may decide that special regulatory measures are needed to protect against the danger of a monopoly. This was the case in Rotterdam when Hutchison Port Holdings (Hutchison – HPH) bought 49 percent of the shares of ECT. The European Commission decided to refuse permission for this transaction on the grounds that this would have allowed Hutchison to establish a dominant market position in Northwestern Europe since Hutchison already owned Felixstowe, Thamesport, and Harwich.

Box 9 lists the portfolio of the largest terminal operators as of June 2005.

3.8. Port Management and Competition

Competition within and between ports has a bearing on the management structure of the port and the relations between the port authority and the terminal operators and cargo handling companies.

Box 8: Global Terminal Operators 2005 Throughput League Table

Ranking	Operator	Million TEU	% Share
1	Hutchison Port Holdings (HPH)	33.2	8.3
2	PSA - Singapore Port Authority	32.4	8.1
3	APM Terminals	24.1	6.0
4	P&O Ports	21.9	3.3
5	DP World	13.3	2.5
6	Evergreen	11.5	1.7
7	Eurogate	11.4	1.6
8	COSCO	8.1	1.5
9	SSA Marine	6.7	1.4
10	HHLA	5.7	1.3

Source: Drewry Shipping Consultants, Annual Review of Global Terminal Operators, 2006.

Box 9: Portfolio of the Largest Terminal Operators as of June 2005**Hutchison Port Holdings:**

Hong Kong (4 facilities), Jiangmen, Nanhai, Ningbo, Shanghai (2 facilities), Shantou, Xiamen, Yantian, Gaolan, Jiuzhou (China); Dar es Salaam (Tanzania); Damman (Saudi Arabia); Buenos Aires (Argentina); Ensenada, Veracruz, Manzanillo, Lazaro Cardenas (Mexico); Freeport (The Bahamas); Balboa, Cristobal (Panama); Busan, Gwangyang (Rep. of Korea); Jakarta (Indonesia); Karachi (Pakistan); Thilawa (Myanmar); Laem Chabang (Thailand); Port Klang (Malaysia); Duisburg (Germany); Rotterdam, Venlo (the Netherlands); Harwich, Felixstowe, Thamesport (United Kingdom); Willebroek (Belgium); and Gdynia (Poland).

PSA International:

Dalian (2 facilities), Fuzhou (2 facilities), Guangzhou (China); Antwerp (4 facilities), Zeebrugge (Belgium); Voltri, Venice (Italy); Rotterdam (the Netherlands); Sines (Portugal); Tuticorin (India); Incheon (South Korea); Singapore (6 facilities); Laem Chabang (Thailand); Muara (Brunei); and Kitakyushu (Japan).

APM Terminals:

Baltimore, Charleston, Houston, Jacksonville, Los Angeles, Miami, New Orleans, Oakland, Port Elizabeth, Port Everglades, Portsmouth, Tacoma, Savannah (United States of America); Buenos Aires (Argentina); Itajai (Brazil); Kingston (Jamaica); Aarhus (Denmark); Algeciras (Spain); Bremerhaven (Germany);

Constantza (Romania); Gioia Tauro (Italy); Rotterdam (the Netherlands); Zeebrugge (Belgium); Abidjan (Côte d'Ivoire); Douala (Cameroon); Onne (Nigeria); Port Said East (Egypt); Tangier (Morocco); Aqaba (Jordan); Pipavav, Jawaharlal Nehru (India); Port Qasim (Pakistan); Salalah (Oman); Kaoshiung (2 facilities) (Taiwan, China); Kobe, Yokohama (Japan); Laem Chabang (Thailand); Dalian, Qindao, Shanghai, Yantian, Tianjin, Xiamen (China); and Tanjung Pelepas (Malaysia).

Dubai Ports World (DPW, including former P&O Ports portfolio):

Adelaide (Australia); Yantian, Shanghai, Tianjin, Yantai, Yantian, Hong Kong (China) (3 facilities); Caucedo (Dominican Republic); Garmersheim (Germany); Constantza (Romania); Puerto Cabello (Venezuela); Djibouti (Djibouti); Cochin, Visakhapatnam (India); Jeddah (Saudi Arabia); Vancouver (Canada); Houston, New Orleans, Miami, Norfolk, Baltimore, Philadelphia, Newark (United States of America); Buenos Aires (Argentina); Tilbury, Southampton (United Kingdom); Antwerp (Belgium); Le Havre, Fos, Marseille (France); Maputo (Mozambique); Mundra, Nhava Sheva, Chennai (India); Colombo (Sri Lanka); Vostochny (Russia); Qindao, Shekou (China); Laem Chabang (Thailand); Surabaya (Indonesia); Manila (Philippines); Fremantle, Melbourne, Sydney, Brisbane (Australia).

Source: Company Web sites.

These changing relations are often cited as an important reason for changing the port management structure. Many port authorities consider the creation of competitive conditions among port operators the cornerstone of their port policy.

One can distinguish between interport competition (competition between different ports) and intraport competition (competition between different enterprises within one port complex). To reduce the risk of monopolies, port authorities usually stimulate intraport competition. However, medium-sized and smaller ports, because of their limited traffic, often accommodate only one port terminal operator. In such cases, port authorities often use their quasi-governmental powers to regulate port charges and tariffs.

Key factors affecting interport competition include:

- *Geographic location:* A port that is strategically located close to well-established transport routes has competitive advantages. A strategic location typically possesses at least the following characteristics:
 - ~ Proximity to one or more major maritime routes.
 - ~ Natural deep water, good protection against waves and currents, large waterfront and landside expansion possibilities.
 - ~ Proximity to major production or consumption areas.

~ Good hinterland connections (road, rail, pipeline, and waterway) with high frequency service offering good connectivity.

- *Legal framework:* The well-balanced national and local legal framework applicable to port management greatly bolsters investor confidence. Many countries have enacted specific port laws dealing with powers and responsibilities of the various actors in the sector. Moreover, land and competition laws are equally important, as well as an independent judiciary.
- *Financial resources:* A port with sufficient financial means of its own or the capacity to raise the funds required to develop and improve the port has a competitive advantage over ports with limited resources or no financial autonomy.
- *Institutional structure and socioeconomic climate:* The management structure of the port must be conducive to private sector investment. Related to this is the socioeconomic climate in the port; private investors prefer ports with a sufficient and well-trained labor force and good relations between employees and employers.
- *Efficiency and price:* Various investigations indicate that port costs are an important, although not decisive, factor in making choices, especially for cargo owners or their representatives. In a world where manufacturers seek to trim costs and improve customer service through the adoption of sophisticated logistics processes, efficiency and the price-performance ratio are increasingly important.
- *Image of the port:* The image the port projects is another factor in its competitiveness. The preferred image is an optimum mix of the above-mentioned components.

Box 10 summarizes the key elements influencing port competition.

3.9. Port Sector Regulator

When interport competition is muted or absent, port authorities or public or private terminal

owners are apt to use their monopoly market positions to raise tariffs (in particular for captive cargoes), which may justify regulation. The need for such regulation may lead to the creation of an independent port sector regulator.

The objectives of the port sector regulator are to ensure fair competition among competing operators in the port; to control monopolies (including public ones) and mergers; and to prevent anticompetitive practices.

A port sector regulator typically has legal powers to counter anticompetitive practices, such as:

- Use of a dominant position to prevent or lessen competition.
- Cross-subsidization by the provider of monopoly services of contestable services, thereby threatening fair competition.
- Price fixing among competitors.
- Use of other practices that are intended to restrict, distort, or prevent competition.

Smaller ports are more vulnerable to anticompetitive abuses because their traffic volumes limit the number of container, bulk, and oil terminals. Generally, when a monopoly or merger situation does not operate against the public interest, it may be permitted provided it is properly regulated. Examples of regulation in such cases could include tariff caps, volume or traffic thresholds to trigger any additional future concession, or expansion limits to incumbent operators that otherwise require an open tender.

The establishment of a port sector regulator should only be effected in the event of serious threats to free competition within the port. It should preferably have the character of an arbitrator instead of a court of law, and be accepted by the port community as being independent. For a more detailed discussion of the economic regulation of ports, see Module 6.

3.10. Value-Added Services

Generally, the function of a port as a node in the transport chain depends on its location and on the economic and technical developments that

Box 10: Elements Influencing Interport Competition**Inland Transport System**

The inland transport system (road, rail, waterway, and pipeline) determines to a great extent the captive area of a port. Improvements to the inland transport system place ports in a more competitive environment. In cases where major ports may have a hinterland that covers a number of countries, their zone of competitiveness overlaps that of other ports. As a result, fierce price competition might exist.

Transshipment

Transshipment (sea-sea transfer of cargo) of cargo, particularly containerized cargoes, is a major market chased by many, if not almost all, major ports in the world. Transshipment has the advantage that it generates additional traffic (two moves for one box) and the weakness of being foot loose. Cargo owners and shipping lines constantly look for the port where the price-quality ratio best serves their particular interests. Because the penalty for changing ports of call for transit traffic is not very severe, carriers tend to switch their transshipment ports with little provocation.

Freight Forwarders and Multimodal Transport Operators

Freight forwarders and multimodal transport operators (MTOs) play a decisive role in

today's transport evolution, particularly within the framework of the door-to-door transport of commodities. As transport and distribution specialists, they greatly influence port choice and interport competition.

Freight forwarders and MTOs have their own networks in the region that provide up-to-date information about technical, commercial, operational, and social differences between (competing) ports. They contribute to the loss of identification with and loyalty to specific ports on the part of the consignees and shippers. Freight forwarders and MTOs often have representative offices in competing ports.

Switching ports is much easier for transport specialists such as freight forwarders and MTOs than it is for shippers and consignees. In addition, as consolidators of small consignments and shipper representatives, they are relatively strong compared to transport providers and other relevant parties, which makes modification of transport routings easier. Assisted by freight forwarders and MTOs, large shipping lines now can change the ports of call with much less difficulty.

Source: TEMPO—Port of Rotterdam.

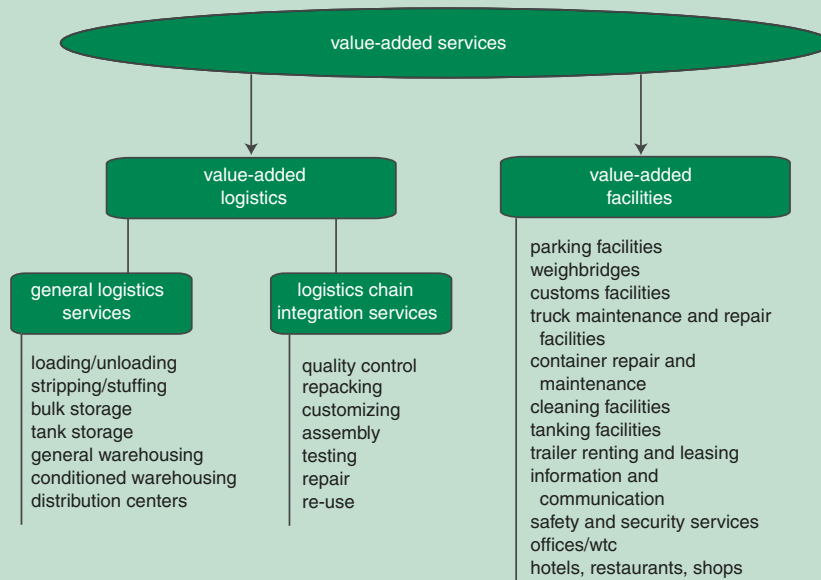
exist in its hinterland. Modern production techniques and consumption patterns increase the use of transportation systems beyond levels suggested purely by the growth in trade and commerce. As a result, more specialized handling, storage, and other logistics facilities are needed. More and more, ports are becoming part of integrated logistics chains. This process of specialization and changing demands, which has taken place over the last two decades in most Western countries, is now taking place with even greater speed in new market economies.

From the port's point of view, creating new services boosts economic performance as well as its attractiveness to existing and potential clients. This, in turn, can help maintain and improve a port's competitive position. When assessing the wisdom of developing new services, it is important to pay attention to the value-

adding potential of the services. This potential can vary product by product and activity by activity. Numerous activities can be classified as value-added services (VAS). Box 11 identifies a number of them.

VAS can be divided into value-added logistics (VAL) and value-added facilities (VAF). VAL has two major components: general logistics services (GLS) and logistics chain integration services (LCIS). GLS are, among other activities, loading and unloading, stuffing and stripping, storage, warehousing, and distribution. These are the more traditional logistics activities and do not directly affect the nature of the product as it moves through the port.

Beyond these traditional activities, more complex LCIS are being developed. To carry out activities that manufacturers do not consider part of their

Box 11: Overview of Value-Added Services in Ports

Source: Author.

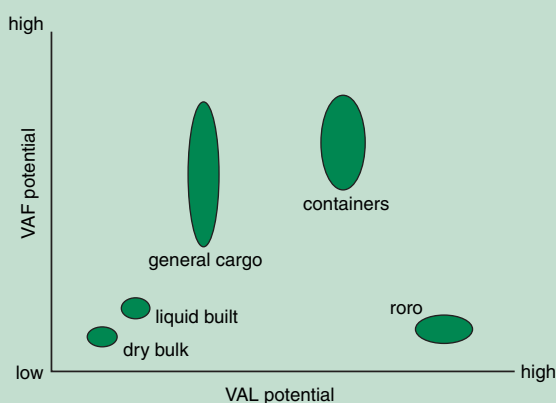
core business, logistics service providers may take over parts of the production chain (for example, assembly, quality control, customizing, and packing) and after sales services (for example, repair and reuse). However, LCIS are only appropriate for certain types of goods. The products that have the highest potential to benefit from such services include consumer electronics, pharmaceuticals, chemical products (except for those carried in bulk), clothing, cosmetics and personal care products, food, machinery, and control engineering products.

The second group of VAS, that is, VAF, is very diverse. These types of activities cannot generally be assigned to a particular type of product or freight flow. It is possible, however, to impute a certain VAF potential by analyzing freight flows such as dry and liquid bulk, general cargo, containerized cargo, and roll-on roll-off. A large container throughput might create the economic basis for establishing container repair facilities, handling vast quantities of chemicals requires port reception facilities, and substantial roll-on roll-off traffic might justify truck maintenance

and repair shops. Box 12 broadly depicts the potential for both VAL and VAF activities for different types of cargoes.

Containerized and general cargoes typically have the highest VAL potential. GLS and LCIS have the best opportunity to serve these cargoes. The VAL potential for roll-on roll-off is very limited. Trucks with drivers are too expensive to be delayed while the cargo is modified; additionally, these loads are usually customer tailored. VAF, such as tanking, cleaning, repair, parking, security, renting, and leasing facilities have a better potential to serve the roll-on roll-off market. Dry and liquid bulk flows have the lowest potential for both VAL and VAF.

To provide a favorable environment for VAL and VAF, many ports are developing distriparks. A distripark is an area where companies are established to perform trade and transport-related value-added services and can also include locations within the port's larger hinterland region. There is no standard development plan for a distripark. As can be seen from the

Box 12: Potential for VAL and VAF

Source: Author.

various developments in the Netherlands, France, Germany, and the U.K. for instance, there is a large variety in distriparks. For example, in Rotterdam, there are three distriparks. The oldest one (Eemhaven) is devoted to container cargo distribution, the second one (Botlek) is devoted mainly to chemicals, and the third and most recent one is also dedicated to containerized cargoes, and includes large warehouses containing goods for European distribution (for example, Reebok).

4. PORT FINANCE OVERVIEW

Before 1980, service ports and tool ports were mainly financed by the government. The general infrastructure of landlord ports typically was financed jointly by the government and the port authority, and the terminal superstructure and equipment by private operators. Fully privatized ports were the exception. In the event a government had no funds for expensive port infrastructure, either port development was halted or money was acquired at preferential rates from an IFI such as the World Bank.

Ports require expensive infrastructure to be able to compete successfully. Until recently, port authorities mainly relied on contributions and subsidies from national governments for building or improving basic port infrastructure. Such contributions usually were excluded from port

financial accounts and therefore helped ports to exhibit positive financial positions.

Whether national governments finance basic port infrastructure depends on the government's political and economic policies. For example, if ports are considered part of the general transport infrastructure of the country, then investments in them may be considered to promote the national interest. Research shows that in 63 percent of the top container ports, the public sector (either the national government or the public port authority) was responsible for creating and maintaining (public) basic port infrastructure.

In some countries, financing basic infrastructure is considered a public task (for example, in France, Italy, and Croatia) because this part of infrastructure belongs to the public domain, which is protected by law. To carry out construction activities or port operations in this domain, a public license is required. This requirement could reduce intraport competition if the licenses are granted only on a limited and discriminatory basis.

An often occurring problem with public (thus political) investment decisions is that the decision to invest does not necessarily originate at the same level of government as that of the financing sources and responsibilities. Because of this disconnect, the interest of public officials

to increase efficiency and profitability of port assets is usually limited because they are not held accountable for the success or failure of their investment decisions.

As mentioned earlier, the increasing role of private enterprise in the port sector exerts a direct influence both on port management and operations, as well as on the way capital projects are financed. The private sector has become interested in financing the construction of entire terminals, including quay walls, land reclamation, dredging, superstructure, and equipment. This has given rise to a large variety of financing and management schemes such as BOT (build-operate-transfer), BOOT (build-own-operate-transfer), and BOO (built-own-operate). Each is designed to mobilize private capital while balancing public and private interests.

Government's views on ports are evolving. Increasingly, ports are considered separate economic entities, although still subject to national regional and local planning goals. As such, they should operate on a commercial basis. By the same token, subsidies for operational port infrastructure construction, such as port land, quay walls, common areas, and inner channels, should be avoided.

Box 13 summarizes the EU's views on subsidies, particularly those for infrastructure.

There still is, however, a category of port infrastructure for which it will be hard to find private investors: investments for expensive and long-lived infrastructure (for example, breakwaters and locks, entrance channels and fairways, and coastal protection works). The main stumbling block for private financing of such projects is their life span, which often exceeds 100 years, and the sunk investment aspect of these projects. Cost recovery of such works often cannot be achieved in 20 to 30 years (see Module 4), which is a normal repayment period for long-term loans for infrastructure works by IFIs. Nevertheless, the second- and third-order benefits from such infrastructure investments for national and regional economies may be substantial. Hence,

many governments are still willing to finance part or all of long-term port investments as these contribute to the achievement of public policy objectives. Caution is warranted, however, whenever governments contemplate underwriting such investments.

4.1. Financing Port Projects

To further clarify financing approaches, it is important to distinguish among investments in basic port infrastructure, operational port infrastructure, port superstructure, and port equipment. Understanding these distinctions will help in deciding which investments should be paid for by the port and which should be paid for by the local or regional community, the central government, and private investors. Box 14 lists various types of port assets under these four categories.

In addition to financing the construction, rehabilitation, acquisition, and maintenance of physical assets, ports may also need to finance organizational restructuring and associated labor compensation as well as working capital to support operations. Each of these categories and their potential sources of financing are discussed below.

In many countries, the government is responsible for financing basic infrastructure, either directly or through a contribution to offset its cost when the project is conducted, for example, by a highway authority or a port authority. In the Netherlands, construction of maritime access and protection works used to be carried out by and for the account of the government with the port authorities obliged to pay one-third of the relevant costs. In France, this issue is regulated in the Port Authority Law of 1965 (Law No. 65 – 491 of June 29, 1965), which allocates a minimum of 80 percent of the costs of basic port infrastructure of the Autonomous Ports to the national government.

For the government, there are two key issues associated with making large direct investments in port facilities: how to find the necessary funds and how to recover the investment.

Box 13: European Rules on Port Subsidies

Beginning in the 1960s, heated discussions took place in Europe on the issue of port subsidization. The United Kingdom in particular accused continental European countries of secretly subsidizing their ports to improve their competitive position. Indeed, most European governments subsidized directly or indirectly the development of their ports. No European rules or regulations were in place because the port sector was not included in the Treaty of Rome. However, rules were laid down within the framework of regulating subsidization of infrastructure. Article 93, paragraph 3 regulates the admissibility of state subsidies in port infrastructure as follows:

- Subsidies should be necessary for the project in question to be realized.
- The period of subsidization should be limited.
- Subsidies must be in the interest of the European Union.
- Subsidies must be compatible with the objectives of the common transport policy.

- Subsidies should not disrupt competition.
- The investment must be profitable from the financial and socioeconomic points of view.
- More than one party should benefit from the subsidy.
- Subsidy of mobile assets is not permitted.
- Subsidies to cover operational costs are not permitted.

The main criterion to assess whether subsidy is permitted is the issue of selective favoring of the country's business sector. With respect to ports, the European Commission is of the opinion that investments in basic port infrastructure, such as coastal works, port accesses, and operational infrastructure are not selective enough to be considered state subsidy. Investments in operational infrastructure have to be reported to the European Commission. Investments in a dedicated terminal that are not fully charged to the client are considered illegal state subsidies and are not allowed.

Source: Author.

The ways in which the government (or any other public body) funds investments are diverse:

- Direct investments coming from the government investment budget.
- Direct investments coming from a special (port) fund.
- Loans from IFIs.

Direct investments, paid for by the investment budget or a special fund, are based on the assumption that they will have a substantial positive effect on the economy, as shown by the positive results of a cost-benefit analysis (always heavily dependent on traffic forecasts). For investments broadly benefiting the entire nation, it is not unusual that a government would not seek direct financial repayment.

However, there are also situations where the government may receive direct reimbursement for the funds it invested via a variety of rates and charges assessed against the beneficiaries of the investments. These may take the form of:

- Compensation paid by the port authority in proportion to the volume of goods transported through a newly dredged channel (per ton or per TEU).
- A fixed amount per year paid by the port authority to the government.
- A percentage of the annual port dues paid by the port authority to the government.

Often, basic infrastructure elements are financed by an IFI under a government guarantee. However, even when IFI financing is made available, ports and governments must still face the challenge of providing matching shares for a period of 30 to 50 years and making interest payments over a period of some 20 years.

When considering financing of operational infrastructure, port authorities have a number of options from which to choose. For service ports or tool ports, governments will usually finance the operational infrastructure, with or without the assistance of an IFI. For landlord ports made up of self-contained terminals, investment in the terminal should be financed

Box 14: Categories of Port Assets**Basic Port Infrastructure:**

- Maritime access channels.
- Port entrance.
- Protective works, including breakwaters and shore protection.
- Sea locks.
- Access to the port for inland transport (roads and tunnels).
- Rail connection between the hinterland and the port.
- Inland waterways within the port area and connecting port areas with their hinterland

Operational Port Infrastructure:

- Inner port channels and turning and port basins.
- Revetments and slopes.
- Roads, tunnels, bridges, and locks in the port area.
- Quay walls, jetties, and finger piers.
- Aids to navigation, buoys, and beacons.
- Hydro and meteorological systems.
- Specific mooring buoys.
- Vessel traffic management system.
- Patrol and fire-fighting vessels.

- Docks.
- Port land (excluding superstructure and paving).
- Access roads to general road infrastructure.
- Rail connection to general rail infrastructure, and marshalling yards.
- Dry docks for ship repair.

Port Superstructure:

- Paving and surfacing.
- Terminal lighting.
- Parking areas.
- Sheds, warehouses, and stacking areas.
- Tank farms and silos.
- Offices.
- Repair shops.
- Other buildings required for terminal operations.

Port Equipment:

- Tugs.
- Line handling vessels.
- Dredging equipment.
- Ship and shore handling equipment.
- Cargo handling equipment (apron and terminal).

Source: Author.

by the terminal concessionaire or the lessee, while the port provides the land (often in a condition ready for construction). The port may also provide the quay wall with the land, but, increasingly, private concessionaires have been willing to invest in this infrastructure.

Other financial arrangements are also common. For example, in U.S. public ports, the port authority may have access to “cheaper” money than a private sector operator. In this case, the authority has the option to issue tax-free port revenue and general obligation bonds. Both give ports access to capital markets; the former relies on the revenues generated by operation of the new facility to repay debt, the latter assures purchasers of the debt that the government will make good on any repayments should revenues from operation of the new facility prove inadequate.

The most attractive situation, both from the point of view of the landlord port authority as

well as of the operator, is the conclusion of a long-term lease contract with the operator (running for a period of 20 to 30 years) for the use of part of the port area. This type of long-term lease has the legal character of a property right and has four advantages:

- At the end of the contract, possession of the land reverts to the government or port authority.
- The contract represents a property right that under certain conditions can be transferred to a third party. There usually is a clause in such contracts stating that such transfer of property rights requires prior permission from the port authority.
- All superstructures (buildings and equipment) may be financed and owned by the operator.
- It can be used as security for a bank loan.

For the financing of common areas (all areas within the port area not being part of a terminal or other port enterprise), the port authority may make use of retained earnings, issue its own bonds (where permitted to do so by its statutes and legal system) or make use of bonds, or simply take a bank loan. Except in the first case, the associated risk is with the borrower. The problem confronting public ports is what to use as collateral or guarantees for the lender, particularly since there may be restrictions with respect to the use of the port's assets.

In the event of a major reorganization program for the port authority, substantial amounts of money may be required for compensation payments to personnel. (See Module 7 for a detailed discussion of labor issues affecting port reform.) Such payments often have a short payback period. Nevertheless, traditional sources of finance may be unwilling to lend money specifically for this purpose. There is, however, a possibility for "triangular" financing, that is, lending the money for some other transaction on condition that the funds thus liberated are used to compensate displaced workers. Moreover, a national government might be willing to provide funds for labor redundancy schemes with or without the involvement of an IFI.

Port operators and providers of services who take over existing installations and equipment

from a port authority may have a greater need for working capital than investment capital, especially in their start-up periods. With respect to debt financing, operators face the problem of providing security because installations and equipment often may be leased under conditions that prevent them from being mortgaged. Since port operators are essentially private companies, an attractive alternative to debt financing is through the flotation of equity shares, the success of which will depend largely on the degree of confidence prospective shareholders have in the newly founded company and in its management.

Supplier credit, provided that it includes the financing of necessary spare parts over a period of at least three years, offers another potential source of funding for the procurement of equipment, with the usual limitations of this type of financing.

Finally, a joint venture between the port authority and the operator offers what may be an attractive source of finance for the operator. For a specialized terminal, where the likelihood of a competing terminal being constructed is remote, a joint venture may be reasonable. In most circumstances, however, the likely effect of a joint venture between a port authority and an operator is to obscure the transparency of the relationship between the different port functions and, more pragmatically, to discourage the entry of new operators to the port. Box 15

Box 15: Multiple Terminal Ownership in Sri Lanka

The Sri Lanka Port Authority (SLPA) faces a number of challenges. In 1999, the government of Sri Lanka entered into a 30-year concession for the South Asia Gateway Terminal (SAGT). SAGT is operated under a BOT scheme by P&O Ports (now owned by Dubai Ports World – DPW), with other partners including Evergreen Marine Corporation and John Keels (Sri Lanka). SLPA has retained a role in the terminal as well. The Port of Colombo is currently a service port, and its lead container terminal, Jaya Container Terminal (JCT), is and will continue to compete actively with SAGT.

Given SLPA's stake in both JCT (100 percent) and SAGT (7 percent), as well as in

many services in the port area including inter-terminal transfers, SLPA's position as a neutral landlord is compromised. Looking into the future, a major expansion, the South Port, will require that the role of SLPA become one of a nondiscriminatory landlord without a direct hand in operations. This should improve efficiency and minimize the conflicts of interest. However, port reform in Sri Lanka is stalling. Despite official government plans, JCT is not corporatized and no port sector regulator has been established on or before October 2004, as required by the concession agreement with SAGT.

Source: Christiaan Van Krimpen.

describes the challenges mounted by such relationships in the case of the Sri Lanka Port Authority.

4.2. Financing Ports: From a Lender's Point of View

Port authorities or port operators seeking to finance new facilities or equipment typically have to offer some sort of security to a prospective lender. Generally, they have assets and other support from political and business circles for the project they want to undertake. In many ports, however, land is government-owned and cannot be used to secure financing. And, when a port needs money to dredge a channel entrance to remain attractive and competitive, the channel itself does not constitute credible security for the lender. There are however, various options for ports to provide lenders “comfort.”

Prospective lenders will examine closely the position of the borrower, which might be a port authority or a port enterprise. In the vast majority of cases, the latter are structured as limited liability companies. In the case of loans to a public port authority, the state or municipality usually provides a guarantee. A port authority might also be corporatized with the state or the port city as main shareholders. In both cases, the lender will assess the financial strength of the port authority and the public bodies owning it. This is often sufficient to ensure financing of the venture without too much regard to the assets supporting it. In Anglo-Saxon jurisdictions, a borrower may create a “floating charge” (similar to a mortgage) over all assets. This avoids the need to consider specific elements of the port assets as collateral.

A port's most valuable asset is its land; however, land's value as a security for financing varies significantly. Generally the land is owned by a public body or by the port authority itself. In landlord ports, the land is concessioned or leased to private operators, with the exception of common areas, which usually have a low commercial value. In the majority of cases, port land cannot be mortgaged under a concession

agreement. Sometimes it is legally possible to mortgage superstructure on the terminal. Using the land itself as collateral is therefore complicated. The land must have inherent worth and a user should be able to exploit it. If a right to use the port area concerned does not accompany the mortgage on port land, its value is considerably diminished. Another problem might be that the national legislation grants only limited rights to a mortgage. Lastly, in the event of a public port authority, the lender might be confronted with political processes complicating its ability to exercise rights under a mortgage. This makes the security less valuable to a lender.

In most ports, the concession or lease to private operators is the principal security for lenders, provided that the conditions of the concession or lease allow transfer of the contractual rights to another party. In the case of a full-fledged concession (including a BOT scheme), the financier often desires to have the ability to arrange for the operation of the terminal itself if the operator defaults. In the case of a concession or land lease, a port authority is usually obliged to transfer the concession or lease to a third party, such as transfer to another port-related firm, when certain conditions are met. This might be a cargo handling firm or terminal operating company, or a port-based industry such as a refinery or a chemical plant. Conditions attaching to the transfer typically require the new firm to use the facilities in accordance with their initial assignment and to generate sufficient seagoing traffic.

A port complex comprises a large variety of other assets that might be mortgaged or used as collateral, such as warehouses, quay cranes, offices and other buildings, tugs, dredged channels, and others. Some of these assets might provide security to a lender, especially when the assets can be used in other ports (for example, cranes and tugs). Others, because they are immobile or have few alternative uses, constitute little or no security (for example, dredged channels). An important aspect of securing financing is the legal right of a port operator to own buildings on land leased from the port

authority. Lenders are usually prepared to finance buildings and certain types of equipment in view of their intrinsic value.

Port firms, and sometimes privatized or corporatized port authorities, typically take the legal structure of a joint stock or limited liability company. The equity of such enterprises does not constitute security in itself, but may help to attract investment funds. Rights of equity holders to repayment usually rank immediately behind the rights of a lender. When balance sheet financing is undertaken, a high level of equity (in relation to debt) means that more funds are available to absorb losses before lenders come under threat.

One of the most important elements of financial security is the cash flow generated by the port or terminal. A lender almost always wants the earnings of the project to provide security for the loan. Estimation of such earnings is highly complex because it involves assessing elements such as future traffic levels, port revenues and expenses, the expected general economic development of the country, potential exchange rate risks, the future political climate, and other factors. The more accurate and reliable the traffic and financial forecasts are perceived to be by prospective investors, the higher the probability that a port authority or port operator will be able to attract risk capital and obtain loans.

Governments may also guarantee commercial loans against political risk and possibly use the guarantee programs offered by the IFIs. In the port sector, lenders often take security via assignment of port charges. However, much will depend on the terms of the concession or lease agreement, terms of earlier financing, and the rights of third parties. Finally, financing can be affected by the provision of additional government support. A government may invest equity in a firm it deems essential for the general development of the port. It may also provide subordinated loans. Direct financial involvement of governments and public port authorities is increasingly common, despite potential conflicts of interest. Sometimes a government may assign certain rights or grant concessions such as a

duty-free status (as was the case at Jebel Ali) to enhance the success of the venture. Properly focused government support can be very important to provide additional comfort to lenders.

4.3. Public-Private Partnerships

As private sector involvement in financing port and other infrastructure works has increased, the tools for financing these facilities have become increasingly sophisticated and the legal conditions to be satisfied by the project more strict. The private sector evaluates its participation in port infrastructure and superstructure projects based on the following elements:

- Expected yield.
- Adequate debt/equity financing structure (for example, 65/35, 70/30, 75/25).
- Strong sponsorship.
- Solid legal contracts.
- Transparent legal framework.
- Fair and open bidding procedures.
- Credible feasibility analyses (technical, institutional, financial, economic, and environmental).

Funding large infrastructure investments in greenfield port projects is more risky because of certain complicating factors, including:

- The large proportion of necessary equity contributions (for example, a minimum proportion of 60 percent) due to the high risk associated with long construction and payback periods.
- The difficulty of projecting future traffic volumes.
- The capital-intensive nature of the investments.
- The continuing risks associated with operations, such as a refusal of requests for tariff adjustments, changes in tax policy, or introduction of new handling techniques that make existing facilities obsolete.

5. PORT REFORM MODALITIES

Today, the term port reform connotes the changing institutional structure of the port business and the much greater involvement of the private sector in the exploitation and financing of port facilities, terminals, and services. Port reform, therefore, results in changing relationships between the public and private sectors.

The sharp increase in world trade over the last 60 years focused the attention of national governments on the economic importance of ports. This was especially the case in major ports developing large industrial sites within their domain. In the 1950s and 1960s, many nations introduced institutional changes with the aim of coordinating port development at national and regional levels and preventing overinvestment in expensive port infrastructure. For example, the United Kingdom established its National Ports Council for this purpose.

In the former Soviet Union, Eastern Europe, and in many socialist-oriented developing countries the situation was entirely different. Ports were considered part of the national state structure (for example, as an element of the ministry of merchant marine or ministry of transport) and were often controlled by national shipping companies. Every matter involving maritime policy was decided centrally, with port authorities carrying out the various day-to-day nautical and operating functions.

At the beginning of the 1980s, the belief in the management and operating capacities of national governments faded in most market economy countries. Central structures came under fire and often lost some of their powers. The privatization wave launched in the late 1970s and early 1980s by Margaret Thatcher in the U.K. also affected the port sector and resulted in a reassessment of the role of the government and private enterprise.

The demise of the communist system in the beginning of the 1990s resulted in the virtual collapse of centrally controlled port systems in the former socialist countries. They too

embarked on port reform and adapted the institutional and financial structure of their port sectors to market conditions.

Despite the social and economic reforms of the past 35 years, the public sector has retained a strong role in port development. Generally, in a market-oriented economy a government continues to be responsible for the development of public goods, goods that have a social utility, but that cannot be provided by the private sector because of low profitability. Moreover, another reason for continuing government involvement in the port sector is the strong ties to government responsibilities in the areas of land use planning, environmental protection, job creation, and the economic stimulation of underdeveloped areas. Box 16 is a compilation of a considerable num-

Box 16: Reasons for Pursuing Port Reform

General Reasons:

- Improve port efficiency.
- Decrease costs and prices.
- Improve service quality.
- Increase competitive power.
- Change the attitude with respect to port clients (become more client friendly).

Administrative and Managerial Reasons:

- Depoliticize the public port administration.
- Reduce bureaucracy.
- Introduce performance-based management.
- Avoid government monopolies.

Financial Reasons:

- Reduce public expenditure.
- Attract foreign investment.
- Reduce commercial risks (investments) for the public sector.
- Increase private sector participation in the regional or national economy.

Employment Reasons for Change:

- Reduce the size of the public administrations.
- Restructure and retrain the port labor force.
- Eliminate restrictive labor practices.
- Increase private sector employment.

Source: Various World Bank surveys between 1990–2000.

ber of surveys seeking to summarize the most frequently cited reasons for change in the management or ownership of ports.

5.1. Strategies and Reform Options

Many port managers and government officials believe that the only way to improve the performance of public port organizations is through the process of privatization. They hold this view because they believe that certain characteristics of the private sector are indispensable to achieve commercial success. The term privatization has therefore become synonymous (and confusingly so) with port reform. Privatization, however, more accurately refers to one aspect of port reform—the introduction of the private sector into areas previously reserved to the public sector, finally resulting in the transfer of port land into full private ownership.

Governments and port managers can select from among a variety of strategies for improving organizational and operational performance, including:

- Modernization of port administration and management.
- Liberalization or deregulation port services.
- Commercialization.
- Corporatization.
- Privatization.

Each of these options may be equally valid and successful forms of port reform, depending on the setting of the port in question. Each of these options is defined below.

Modernization of port administration assumes that performance can be improved by introducing more suitable systems, working practices, or equipment and tools within the existing system of bureaucratic constraints. The advantage of this strategy is that certain changes in the organization can be made without the requirement to change laws or national policy.

Liberalization and deregulation are the reform or partial elimination of governmental rules and

regulations that enable private companies to operate in an area where previously only the public sector was allowed to operate.

In the case of *commercialization*, although the public port is not transformed into a private company, it is given more autonomy and made accountable for its decisions and overall performance. A commercialized port authority applies the same management and accounting principles as private firms and can adopt private sector characteristics and practices to become more customer oriented as well as more efficient and profitable.

In the case of *corporatization*, a public port enterprise is given the legal status of a private company, although the public sector or government still retains ownership. All assets are transferred to this private company, including land lease rights. Land ownership usually remains with the port authority.

The most complex form of reform is *privatization*. A useful definition of this term can be found in the UNCTAD publication of 1998 *Guidelines for Port Authorities and Governments on the Privatization of Port Facilities*: “Privatization is the transfer of ownership of assets from the public to the private sector or the application of private capital to fund investments in port facilities, equipment, and systems.”

More specifically related to the port sector are two more variations of privatization:

- *Comprehensive privatization*: A scheme in which a successor company becomes the owner of all land and water areas as well as of all the assets within the port’s domain (this is equivalent to the sale of an entire port to a private company).
- *Partial privatization*: A scheme in which only part of the assets and activities of a public port body are transferred to the private sector (such as the sale of existing berths, the transfer of pilotage or towage functions, or a concession by a public port authority to a private company to

build and operate a terminal or a specialized port facility).

Hence, privatization expands the role of the private sector in the ownership or operations of existing port facilities and services, as well as in the development of new port facilities. In the following sections, the various port reform options are described in greater detail.

5.1.1. Modernization of Port Administration

The strategies of liberalization, commercialization, corporatization, and privatization all attempt to improve the efficiency of the port administration and the operations through the introduction of a business-like environment. Although these strategies can be effective, some governments are reluctant to implement them because they fear that such institutional modifications may lead to a disruption of services or loss of government authority, prerogatives, and power. As a result, governments sometimes prefer other less sweeping methods to improve organizational performance, such as the modernization of the port's administration. Such a strategy assumes that the performance can be improved even in the prevailing environment of bureaucratic constraints. The advantage of this strategy is that certain changes in the organization can be made without the necessity to make legal or policy changes.

Examples of improvements that can be introduced without legal or policy changes are:

- Adoption of corporate planning practices.
- Application of human resources development (HRD) planning.
- Use of computer applications and management information systems (MIS).
- Development of electronic data interchange (EDI) and information and communication technology.

Many ports have refrained from introducing corporate planning (strategic management or strategic planning) because port managers fear that its positive effects may be undermined by bureaucratic or cultural considerations.

Effective corporate planning is dependent on strategy formulation involving group interaction. While group-based strategic decisions often can offer the best available alternatives, a strict hierarchical organizational structure places the majority of important decisions in the hands of a single executive. In such cases, the success or failure of port development and policy is dependent on one person only, which is a risky situation. But this is precisely the most frequently observed form of management in traditional ports.

Career planning and management development are important elements in a port modernization strategy. Many ports have failed to introduce career planning and career development in the organization, or omitted to link the two activities. As a result, such organizations are characterized by low employee motivation levels, high absenteeism, and high turnover rates at management level positions. Efforts to improve the administrative environment and performance should include the rational use of computer applications and the application of modern communication technologies. Such developments are perhaps the most significant technological efforts undertaken by ports. Many have developed advanced computerized management information systems. EDI and information and communications technology are excellent tools to improve port administration and communication.

In the final analysis, the modernization option generally has not led to fundamental changes in the port sector, which is what the reform process sets out to do. It should, therefore, be considered as a stepping stone toward a more comprehensive reform program.

5.1.2. Liberalization

Liberalization sets the stage for a private organization to carry out certain port activities previously reserved exclusively for the public sector (public monopoly). With this reform, the private sector is authorized to provide selected port services to users in a competitive environment with the intent of increasing efficiency and improving port-client responsiveness. The essential feature

of the liberalization option is implementing legislation that permits the private sector to provide facilities and services and to compete with the existing public port organization. The most important advantage of this system compared to other port reform systems is that the public port operator, even if inefficient, will continue to exist as a form of insurance against disruptions in service, while unsuccessful private port operators can be replaced.

Since liberalization may temporarily introduce competition between public and private port operators, the two must be able to compete effectively and fairly. This might require the introduction of an independent port sector regulator. Actually, the logic of liberalization should lead the public port authority to fully withdraw from commercial activities and concentrate on any necessary regulatory functions.

Liberalization is often opposed because of the existence of internal as well as external cross-subsidies. This, for instance, occurs when ports with a statutory monopoly cross-subsidize unprofitable services in competitive markets with profits earned in monopoly markets. For example, in many ports the most profitable activity is the container terminal operation, the revenues of which frequently support bulk or general cargo facilities and services. Other forms of cross-subsidy occur when a public port organization realizes substantial revenues from nonmaritime-related activities, such as real estate development, and uses these revenues to underwrite port-related costs. With this type of support to draw on, the public organization has a competitive advantage over its private counterpart.

On the other hand, the price advantage that the public port body may have had diminishes as competition erodes its monopoly power and prices are set in a more competitive environment. Its price levels cannot match those of the private sector if it has to rely on inflated prices to subsidize other port services. The former monopoly may, as a consequence, be forced to scale back or cease the unprofitable activities (which, although unprofitable, may be vital to

the nation) to compete effectively with the private sector.

On many occasions, the public sector continues to rely on public subsidies, thereby undermining fair competition between the public and the private sectors. This strongly argues for the clear separation of the regulatory and commercial roles in a port, with the port authority taking on the former and the private operator the latter.

Another potential problem associated with the liberalization option is the possibility that the public port organization will use other unfair practices to compete against private operators. The port authority, for example, may take actions that are beneficial to the public terminals, but are disadvantageous to the private terminals. One example is the dredging of certain Asian ports; often, the government ministry or the public port authority provides exclusive dredging services. This public entity can refuse to offer this service to the private operators, thereby putting those operators at a competitive disadvantage. Another possibility is that the service would be provided to the private sector at a higher price than the one charged to the public sector. To avoid such potential conflicts of interest, the government may also decide to liberalize or privatize these essential complementary services to create a level playing field. Because of these situations, the logical conclusion for the liberalization option is for all commercial activities of the port to be ultimately transferred to the private sector.

5.1.3. Commercialization

Commercialization is the introduction of commercial principles and practices into the management and operation of a port authority or part thereof, requiring it to operate under market disciplines. The process can be achieved through negotiated performance contracts between the government, acting as the owner of the port, and the port management. The agreement specifies the port's objectives in terms of performance goals, service quality, and social obligations. Commercialization is characterized by the following:

- Decentralization of the decision-making process.
- Relaxation of the hierarchy of the port organization, thereby allowing port management to exercise much greater control over:
 - ~ Budgeting.
 - ~ Procurement and purchasing.
 - ~ Maintenance strategies and programming.
 - ~ Salary scales and employment conditions of labor and staff.
 - ~ Hiring and firing.
 - ~ Setting objectives and performance targets.
 - ~ Formulation of strategies.

Essentially, commercialization aims to create an environment in which the port authority runs on a commercial basis. This involves a variety of business-type decisions. The chief executive typically has a certain freedom of action and refers only specific matters relating to overall policy or strategy to the controlling body (the relevant ministry or city council). Commercialization is designed to allow port management to conduct, to a large extent, its own affairs and at the same time imposes on it responsibility and accountability for its decisions and performance. In practice, however, a common problem has been that governments continue to interfere in port decisions, undermining the authority of port management.

Commercialization seeks to provide port managers with decision-making authority and responsibility similar to that existing in private sector organizations. However, since the port enterprise may still have substantial monopoly power, managers may not be confronted directly with the hardships and necessary discipline imposed by market competition. Therefore, a commercialized government organization often will not be as efficient as a comparable private firm, unless it is subject to competition.

Since the essence of commercialization is to require and empower port management to perform as well as the private sector, changes in the institutional and legal structures of the port organization are required to remove bureaucratic obstructions. A common first step in the process of commercialization and the elimination of bureaucratic inefficiencies is to transform the port organization into a truly autonomous port authority. Box 17 notes that the governments of China and Mexico followed this course.

Commercialization should result in the creation of a port authority board to oversee the organization's activities, removing that responsibility from the central government ministry or city. At the same time, however, the government may still need to exercise some form of oversight to safeguard the public interest. Commercialized port authorities should:

- Be financially independent (own their assets, establish their own budgets, and make their own investment decisions).
- Have their own personnel schemes separate and distinct from the national civil service, patterned on the schemes of private companies.
- Have a management that is responsible for and held accountable for the port's performance by a board. Board members can be appointed by the national or local government, port users, or representative labor organizations.

In many countries, the process of commercialization is only partially implemented because procurement and contracting practices remain subject to national government regulations.

A weakness of the commercialization process is that during its introduction, the acting public sector manager becomes the chief executive responsible for pushing through the changes in the organization. The manager's performance and commitment to the commercialization of the port authority greatly influence the management team and the shape and pace of reform.

Box 17: Creation of Commercialized Port Authorities in China

Although the country has a long coastline, China had a long history of being a “continental” country until the 1980s. In 1985, a strategic document known as “The Interim Regulations of the State Council of the PRC on Preferential Treatment to Sino-Foreign Joint Ventures on Harbour and Wharf Construction,” was circulated and implemented by the State Council of the PRC.

Consistent with the first steps toward reforms, the Eighth (1991–1995), Ninth (1996–2000), and Tenth Five Year Plans (2000–2004) placed port development among the top priorities on the Chinese development agenda, particularly since the 1990s.

Before 1980, the port industry typically fell under highly centralized control. In 1980, the dual leadership mainly was led by the Ministry of Communications. In the late 1990s it was gradually shifted to the “dual leadership mainly led by local authorities,” implying that local municipal governments were expected to act both as “landlord” and “regulator,” thereby enhancing local governments’ intervention in port affairs.

Port authorities were either created or transferred to municipal authorities as well as endowed with financial autonomy in the routine administration and operation of ports.

Source: Dr. James Wang, University of Hong Kong.

Creation of Independent Port Authorities in Mexico

In 1993–1994, the management of the major ports in Mexico was transformed into the Administracion Portuaria Integral (Integral Port Administrations). This decentralized the port system, set up individual port administrations coordinated by the Coordinacion General de Puertos, and opened the way to for introduction of the private sector in operational activities in the ports such as cargo handling, storage, and towage. The Secretariat of Communication and Transportation retained economic and safety oversight of the decentralized port system.

Source: C.Bert Kruk, World Bank Staff.

change their management styles. This has proven to be a difficult transition and is the reason why, in many such processes, managers with private sector experience soon replace the former civil service senior management. A well-thought-out training program may be an effective tool to change attitudes and prepare management and staff for the different style and culture commercialization brings.

5.1.4. Corporatization of Terminals

The next gradation on the path to full privatization is corporatization. Corporatization goes further than commercialization in that it involves the transformation of the public port authority or part thereof into a corporation. This means that the port authority or one or more of its constituent parts, such as a port authority–operated container or general cargo terminal, is converted into a legally and financially independent legal entity with its own board of directors. The government or public port authority retains ownership in all shares of the venture. By applying market principles, the corporatized port authority is expected to function more efficiently. A corporatized port authority may also accommodate both national and local interests, as in the case in Poland. In the case of a publicly managed terminal, corporatization is usually the first step onto the road to privatization. Thus, a corporatized port authority, especially when based on a specific law, can be considered a permanent organizational structure while a corporatized terminal usually is a transitory organization.

Corporatization, then, is the process in which a public sector undertaking, or part thereof, is transformed into a company under private corporate law. This is achieved by selling shares in a new company that conducts the port’s business and holds its assets, although the shares are issued and may be owned entirely by the government (or port authority). The main objective is to decrease direct government control over the company and to make it more responsive to market forces. Similar to privatization, corporatization can include financial

In other words, managers accustomed to civil service procedures and practices have to drastically

restructuring and be a catalyst for the introduction of commercial principles. Corporatization is, in effect, privatization without divestment.

For political or legal reasons (often both), comprehensive or partial privatization may be neither appropriate nor possible. In such cases corporatization may offer an effective alternative for achieving more efficiency and greater market orientation. Corporatization usually features most of the following characteristics:

- A complete separation of the public management and regulatory functions from the commercial activities that are being corporatized.
- Clear and nonconflicting objectives for the new firm, set by the government.
- Greater management responsibility and autonomy for decisions on operations, investments, revenues and expenditures, and on commercial strategy.
- Where no market-based scrutiny is possible, performance measurement against a range of financial and nonfinancial criteria.
- Rewards and sanctions for managers based on performance.
- Government ensures that the corporatized firm does not have any comparative advantages or disadvantages relative to private port firms operating under similar market risks and conditions (for example, with respect to tax and interest rates).

Corporatization can be implemented either through incorporation under a commercial code as a limited liability company or as a statutory authority under its own articles of incorporation. The statutory option is the most common approach for corporatizing port authorities. In view of the public interest involved, it is also the most appropriate one.

During the initial phase of the corporatization process, the following principal actions are required:

- Preparation and enactment of any needed legislation, such legislation often serves to

eliminate the state monopoly within the affected sector.

- Development of the company charter (for example, the memorandum and articles of incorporation) for the corporatized port enterprise, and its subsequent incorporation.
- Development of a corporate plan including traffic forecasts, a business development plan, and pro forma income statement and balance sheet.
- Capitalization and vesting of part of the assets and liabilities of the former public company in the new corporation.
- Creation of a new labor statute, provision of financial and social measures to cope with excess personnel (such as pension fund guarantees, redundancy payments, or retraining), and transfer of personnel from the former public entity.
- Retraining of management and staff to increase commercial orientation and improve managerial procedures.

The key difference from the other reform options discussed is that the goal of corporatization is to constitute the corporatized firm as a single, self-contained entity. The corporatized company's management should be free from direct government interference or control (bureaucratic constraints) to allow them to operate the company on commercial terms. At the same time, management should also be held accountable for its actions.

The new corporation can be organized with clearer lines of communication and responsibility. Distinct targets can be set and adhered to. Stricter internal financial controls can be introduced and, where necessary, information and accounting systems established. This all seeks to make the business more aware of market and client requirements.

One of the corporatized terminal's greatest strengths is its financial autonomy. This means that tariffs should no longer require approval from the government or ministry (unless it is a

monopoly environment and the government wishes to exercise strict control) and that the company should be allowed to establish its own procurement, contracting, and hiring and firing practices. In addition, such companies do not rely on government support for investments and have the authority to negotiate loans directly with commercial banks. The government, however, typically will continue to exert some measure of political control. Usually this is achieved through the appointment of board members.

5.1.5. Corporatization of a Port Authority

Among the reasons for pursuing corporatization over other alternatives are:

- To allow time for the management to settle into its new role before contemplating full privatization (as is the case of the Rotterdam Municipal Port Management, until January 1, 2004, a commercialized port undertaking).
- To overcome the reluctance of private capital suppliers to invest in the company.
- To protect the public interest.

Having completed the corporatization of port operational activities, subsequently one can consider the corporatization of the port authority as a regulatory body (for example, the case of the port enterprise of Antwerp).

Negative aspects of corporatization include:

- In a majority of cases, the new corporate entity still has a monopoly over the port land.
- Unless competition is created, the corporation may not be as efficient as anticipated.
- Governments are still able to politicize the corporatized firm by retaining the right to appoint board members and executive directors.
- There will often be a need to introduce a port sector regulator to create a level playing field among competing service providers.

However, the most problematic issue affecting corporatized port authorities is the mix of public and private objectives. The rationale behind this type of reform is the expectation that corporatized ports operate as viable and effective businesses. However, while part of the ports' enabling legislation may state that they should pursue commercial objectives and operate as effective businesses, the public shareholders (ministers, commissioners, aldermen, or council members) have responsibilities other than strictly commercial ones, such as the delivery of public goods.

There are two types of corporatization models. The first model's goal is to transform former statutory authorities into government-owned enterprises. This means that a corporatized port authority would have a constitution consisting of a memorandum and articles of association that define the nature of the company and the manner in which the affairs of the company are to be conducted based on the "companies act" or "corporations act" in force. A regulatory body in existence should oversee performance of the newly formed port authority and ensure that conditions of the company's constitution and of the applicable companies act are met. This model has been applied to Rotterdam Municipal Port Management.

The second model involves the creation of a statutory government-owned enterprise (corporation) by specific legislation. This would mean that there is the potential for some degree of public (national, regional, or municipal) input and scrutiny. It also means the introduction of tailor made provisions, such as those relating to accountability and public control.

The distinction between the models focuses on the issue of whether the organization is subject to corporate law or to the conditions of the statute and specific legislation. The difference between a company incorporated under corporate law or by or pursuant to a statute is that the company's constitution spells out the nature of the company as well as regulations for the internal government of the company. This requires a rigid operating framework and a regulatory regime that ensures

that the conditions of the company's constitution are neither breached nor abused to suit political or other gains.

Corporative port authorities established by law as government-owned enterprises, on the other hand, are quasi-private sector companies. They are expected to operate like their private sector counterparts, but are not subject to corporation's law, instead they are subject to the provisions of the statute under which they were enacted. Under this model, the public sector holds a pivotal role in the structure and operation of the organization.

Ultimately, the choice of one of the alternative models when corporatizing a public port authority is a political issue. In some countries, (larger) ports are considered part of the public domain, representing vital public interest. Other countries view ports mainly as commercial entities. The quality of governance also plays a role. Stable and democratic countries will be less inclined to corporatize their port authorities, unless for very specific reasons, which often have little bearing on efficiency. In Poland, the ports were corporatized to combine state and municipal ownership of port land. In Australia, the policy for port reform was an endeavor to improve efficiency in the port environment, notably by distancing government from day-to-day operations. Box 18 describes the process of corporatization for the Aqaba Container Terminal in Jordan.

5.1.6. Privatization

Privatization can be either comprehensive or partial. The latter takes the form of a public-private partnership and is usually combined with the introduction of a landlord port authority. Comprehensive privatization remains an exception and is not a preferred option for major ports.

The reasons that might prompt governments or a port authority to enter into the privatization process are discussed below.

Removal of trade barriers. Outdated work practices, obsolete facilities, inadequate institutional structures, and excessive charges in ports cause

inefficiencies that can create obstacles to foreign trade. Indirectly, the entire population of a country pays for port inefficiencies, which are reflected in the prices of both import and export commodities.

Harnessing the efficiency and expertise of the private sector. Increasing specialization in the shipping and port industry requires highly trained personnel, advanced systems and equipment, and capital-intensive cargo handling techniques to meet the fast changing demands of port users worldwide. Government-owned firms, with their cumbersome administrative procedures, poor cash flow generation, inflexible payment schemes, and lack of market orientation usually cannot cope with these requirements.

Elimination of political interference. Although there are countries with well-balanced political systems and minimal political interference in the functioning of the state- or municipal-owned port enterprises, the appointment of political nominees with inadequate experience to high level positions in government-owned ports is a well-known phenomenon. In contrast, privatization of port operations often results in the selection of professional port managers with an undiluted focus on the market and its changing needs.

Reduced demand on the public sector budget. Partial privatization does not necessarily mean a total withdrawal of the government from port investments. However, a large (often major) part of port investments can be undertaken by the private sector without compromising wider social and economic benefits. Development of a modern port still requires a balanced public-private financial package with balanced risk sharing.

Reduced expenditure on port labor. Government-owned enterprises traditionally have been a large source of direct employment; in the port sector, the greatest employment is in cargo handling services. A privatization scheme that maintains restrictive working practices cannot be effective. In the long run, creating an internationally competitive port system, with all its direct and indirect economic spin-off effects,

Box 18: The Port of Aqaba: Corporatization and Privatization

The Port of Aqaba recently became part of the Aqaba Special Economic Zone, resulting in a considerable change in its institutional structure. In 2000, the Jordanian parliament enacted the Aqaba Special Economic Zone Law (ASEZ Law, no. 32, 2000) and established the Aqaba Special Economic Zone Authority (ASEZA). This authority enjoys financial and economic autonomy and is governed by a Board of Commissioners nominated by the Council of Ministers, endorsed by a Royal Decree. It succeeded the former Regional Authority and the Municipality of Aqaba, administers the entire zone, and owns all public land in the area. The authority is also responsible for the development of Aqaba port, the King Hussein Airport, and all public utilities. The development of the zone has been very successful under the new regime and investments have soared. In 2003, the Council of Ministers approved the establishment of the Aqaba Development Corporation (ADC) as a wholly owned government enterprise under ASEZA, enabling ASEZA to transfer all of the port and airport's operational assets to the new corporation.

While port operations are still conducted by the Aqaba Port Corporation, ADC became the corporatized landlord port with the task to privatize port operation. Its first action was the issuance of a management contract for the Aqaba Container Terminal to A.P. Moller Terminals, which within two years restored terminal operations to world-class standards. ADC also developed plans to privatize the marine operations (pilotage, towage, mooring, and unmooring) as well as bulk and general cargo terminals in a later stage.

ADC's philosophy is to participate as a major shareholder (up to 49 percent) in the privatized terminals and services, issuing as grantor concession agreements to foreign and local enterprises. Currently negotiations are being conducted with a large international terminal operator for a 30-year concession or BOT agreement for the Aqaba Container Terminal, which plays an increasingly important role in the region.

Thus ADC will be acting both as a grantor of the concession, representing the national interests of Jordan, and as a major shareholder of the terminal. It should be noted that great care should be taken not to confuse both roles. On the one hand, it is understandable that ADC desires to stay closely involved in the terminal development because the Aqaba Container Terminal is the only container terminal in the country. On the other hand, national interest should not be enforced via the board of directors of the terminal operator, but by ADC as grantor of the concession. This would imply the careful structuring of the concession agreement in respect to guaranteeing the quality of the operations, the future extension of the terminal, the employment of Jordanian nationals, the development of value-added services, and the termination of the agreement in the event that the operator does not develop the terminal in the interest of the country. The ADC nominated representatives in the board of directors should not be brought into the uncomfortable and confusing position of safeguarding both the national interest and the economic interest of the company.

Source: Christiaan van Krimpen.

is more valuable than the short-term objective of maximizing local dock labor.

Other objectives. Governments sometimes pursue privatization for other reasons, such as raising revenues for the state treasury, disposing of assets, and encouraging competition and broader citizen participation in share ownership.

In its many variations, privatization usually includes the following core features:

- Divestiture (selling off government-owned assets).
- Deregulation.
- Competitive tendering.
- Private ownership of operational assets with market-based contractual arrangements.

In theory, privatization provides the same flexibility to management as commercialization.

Unlike under commercialization (where in the worst case scenario the government is likely to subsidize the company if it fails to perform adequately), a privatized terminal operation can be permitted to fail, provided other facilities can handle its traffic. Or, existing facilities may be taken over by a new operator who continues the operations. The management determines its own fate, free from significant government influence, as long as it complies with regulatory requirements.

6. REFORM TOOLS

Before deciding on a port reform process, governments should articulate clearly the ultimate goals of reform. Broadly, there are two alternatives:

- The public authority in charge of the port sector (either a service port or a tool port) wants to restrict its public role by privatizing cargo handling operations and other nonlandlord activities. In this case, existing operations have to be privatized or corporatized and service or tool ports reconstituted as a landlord port. Partial privatization is the goal.
- The public entity that has final responsibility for the port sector (most probably a national government) wants to privatize the entire sector, including responsibilities that generally are considered belonging to the public domain. Ownership of port land, planning, investment and management are all transferred to private sector entities, which have no formal commitments to any public institution. Comprehensive privatization is the goal (see Box 19 for an example of this type of privatization process).

This section focuses on the implementation of partial privatization, since that approach has been used successfully to balance public and private interests and still meet the objectives of port reform. Box 20 shows the spectrum of port reform tools that will be discussed in greater detail in this section.

6.1. Contracting Out and Use of Management Contracts

One tool available to governments to improve port efficiency and performance is contracting out to the private sector certain functions previously executed by the public port management. A public enterprise may decide to contract out certain of its operations through a tender-bid procedure instead of conducting them in house when the following circumstances apply:

- The functions can be performed at a price that is substantially lower than the cost of conducting them in the public sector.
- There is a large field for competitive bidding.
- Government policy is to transfer gradually certain noncore activities of the public sector to the private sector.

Contracting out, however, should be handled with caution as it involves several risks:

- If the number of potential bidders is limited, a meaningful comparison of the bids may not be possible.
- Potential bidders may form a cartel or otherwise collude when bidding for a contract.
- Contracting out may create a monopoly for those activities, which would be contrary to the public interest, unless there is a proper regulatory oversight framework.

Also within the framework of commercialization, a separate contract for the management of the public port authority or public terminal operator may be awarded. Use of such a tool may be appropriate in cases where a port authority has experienced poor management for an extended period of time; the financial condition of the port authority needs to be substantially improved with a view to its corporatization or privatization at a later stage on terms favorable to the ministry of finance of the country concerned; or the port authority would generally benefit from the introduction of private management.

Box 19: The Experience of the Hanseatic Landlord Ports

On the northwest European continent, five universal ports—Antwerp, Rotterdam, Bremen, Bremerhaven, and Hamburg—compete intensely for business generated in overlapping hinterland areas. Surprisingly, the basic organizational structure of all these ports is quite similar. They are operated in a public-private partnership, where the public entity takes responsibility only for:

- Setting the legal framework and the guidelines for port development.
- Providing the port infrastructure.
- Administering and renting out the publicly owned land.
- Regulating and supervising ship movements.

The port business proper—cargo handling, storage, and physical distribution—is left entirely to the private sector. The combination of public port ownership and private port business is often referred to as the landlord model or, because the above-mentioned ports have a Hanseatic tradition, as the Hanseatic model.

But is a landlord port also an efficient port? There are two main arguments to support a positive answer to this question. First, the landlord model opens up opportunities to adapt the port infrastructure quickly to changing requirements of world trade. Second, this organizational system provides the possibility of competition in the port between the different suppliers for nearly

every service to ships, passengers, and cargo on condition that traffic and derived activity are sufficiently large.

Often port administrations are confronted with the problem that land at the waterfront is limited and opportunities for port expansion are constrained due to geographical and hydrological restrictions or political borders. Even where no physical restrictions exist, growing environmental consciousness or lack of funds may make the transformation of green land into port sites or land reclamation outside the port area difficult and time consuming. As a consequence, port land is precious and has to be used very carefully, not only taking into account the present day situation but also changes in the future. The landlord model offers a good way to achieve this balance.

Because under the landlord model port sites are only rented out and not sold to private port operators, the sites in the established port area are at the disposal of the port administration, at least at the end of the contract period. Often the port administration also has the right to terminate a contract early to relocate a company in the port area, provided it pays for the relocation costs. This would not be possible if the sites were sold. In Hamburg, this has proven useful, especially for restructuring older parts of the port no longer suitable for cargo handling activities.

Source: Heinrich, Michael. 1999. "Port Efficiency—The Public-Private Partnership." (Port of Hamburg) World Ports Development, p.16.

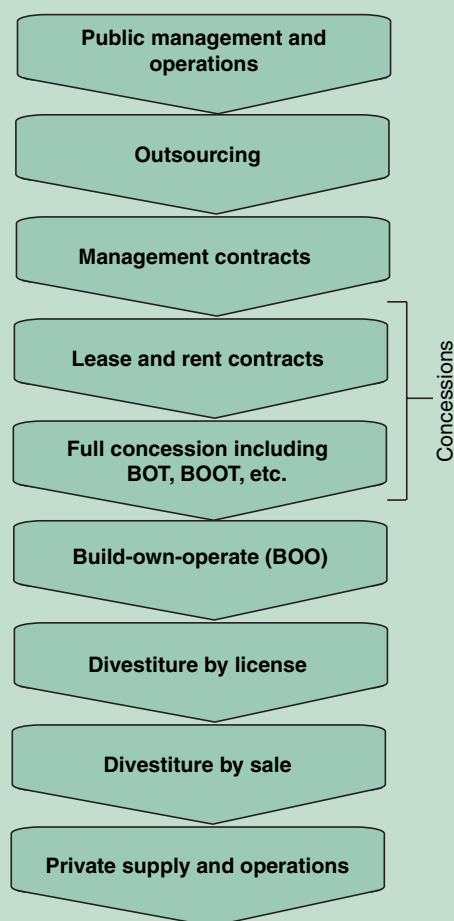
The usual practice is for the government to agree on a management contract with a private sector operator. The operator agrees to employ the existing port staff and to provide adequate and efficient service to all customers. This former requirement (retention of existing staff), however, often emerges as the main reason for the failure of management contracts (for example, the Port of Mombasa). The management company may be saddled with excess labor and labor costs that cannot be sustained in a competitive market.

A management contract is usually entered into for a specified period, generally between three

and five years. Upon expiration of the contract period, it may either be renewed or awarded to another party. A management contract may also be used as a stepping stone toward the granting of a more extensive concession. It is important when entering into a management contract that the government or ministry has the right to impose financial penalties or terminate the contract in case the private operator does not meet specified minimum levels of efficiency, financial performance, or throughput.

6.2. Concession Arrangements

In concession agreements, governments are still widely involved in port management, mainly

Box 20: Spectrum of Port Reform Tools

Source: Author.

through public landlord port authorities. At the same time, the role of private enterprise in the sector will continue to grow. Service and tool ports will gradually disappear and be transformed into landlord ports; in some cases, fully privatized ports will emerge. For landlord ports, public bodies will retain the ultimate ownership of assets (especially land), but will transfer a major part of the financial and operational risks to the private sector. Governments will act mainly as regulators and land developers, while private firms will assume the responsibility for port operations. The main legal instrument used to achieve this realignment of public and private sector roles and responsibilities is a “concession.”

Concessions are widely used in the port sector today. A port concession is a contract in which a government transfers operating rights to private enterprise, which then engages in an activity contingent on government approval and subject to the terms of the contract. The contract may include the rehabilitation or construction of infrastructure by the concessionaire. These characteristics distinguish concessions from management contracts on one end of the reform spectrum and comprehensive port privatization on the other. Concessions, by permitting governments to retain ultimate ownership of the port land and responsibility for licensing port operations and construction activities, further

permit governments to safeguard public interests. At the same time, they relieve governments of substantial operational risks and financial burdens.

There are two main forms of concession used in ports today: lease contracts, where an operator enters into a long-term lease on the port land and usually is responsible for superstructure and equipment, and concession contracts, where the operator covers investment costs and assumes all commercial risks. Such contracts are often combined with specific financing schemes such as BOTs.

Lease contracts and concession contracts share the same principal characteristics:

- The government or public port authority conveys specific rights to a private company.
- They have a defined term (10–50 years).
- They are geographically delimited.
- They directly or implicitly allocate financial and operational risks.

6.2.1. Leasehold Agreements

Landlord ports derive a substantial part of their income from leases. Typically, only land or warehouse facilities are leased. Berths may be included or excluded from the lease rent. If excluded, the port authority collects and keeps all revenue derived from berthing fees. There are two basic forms of leases most commonly in use today: flat rate and shared revenue leases. Both types of leases can be used for multiuser as well as single-user (dedicated) terminals or berths.

Flat rate leases give the lessee the right to use a fixed asset for a specific period of time in exchange for periodic payments of a fixed amount. In the case of a land lease, this can be a fixed payment per year per square meter. Lease rates may vary depending on the degree of port site development (for example, unpaved versus paved land or land with or without structures). The main advantage of this form of

lease is that the lease rent is known to both parties in advance. The flat rate lease also provides to the lessee the greatest incentive to fully use the available capacity of the terminal.

The main characteristics of the flat rate lease are:

- A specific sum of money is paid per square meter of port area for a specific period of time.
- In principle, the lease represents a fair return to the port authority on the value of the property.
- Lease payments may be adjusted for inflation over the life of the lease.

To set lease payments at the proper level, the port authority must be able to forecast accurately the level of business (and, hence, the wear and tear on port infrastructure and the traffic from which the lessee will benefit). It should also try to assess the true value of the land (for example, in its best alternative use) and attempt to recover this value through the anticipated level of business transacted by the lessee. Because the lessee must make the same lease payment regardless of the revenue his business generates, he has a strong incentive to make full use of the leased land and structures. A flat rate lease is often the preferred form of lease for a port whose primary objective is to maximize throughput and benefits to the local economy.

In a shared revenue lease, the lessor also gives to the lessee the right to use a fixed asset for a fixed period in exchange for a variable amount of money. With a shared revenue lease there is a minimum payment regardless of the level of activity, but no maximum payment. The main characteristics of the shared revenue lease are:

- A minimum level of compensation.
- No established maximum level.
- Maximum compensation depends on the facility's capacity.
- Minimum compensation may not fully cover the interest and amortization of the lessor (port authority) for the lease area.

A shared revenue lease represents true partnerships between the port authority and the lessees. Under this arrangement, the port must carefully determine the minimum lease payment, taking into consideration its financial obligations, its own forecasts of traffic volumes, and its statutory and business tolerances for risk. Once minimum throughput levels are attained, the lessee and the port share the benefits deriving from any additional activity. The shared revenue lease is the only approach in which the port authority can maximize revenues, employment levels, and throughput. Along with this potential for added rewards, however, come added risks.

Box 21 shows how the two different forms of lease would work for a notional terminal.

Potential lease partners for a port authority are:

- Terminal operators.
- Cargo handling companies.
- Dedicated terminal operators and shipping lines.
- Forwarding agents.
- Inland transport operators.

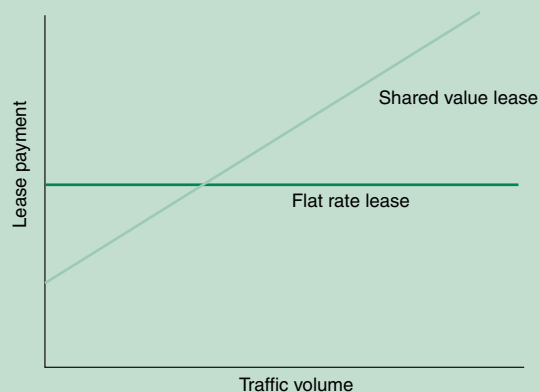
Today it is increasingly common for shipping lines to lease terminals from port authorities.

For these leases to succeed for all parties, however, two key conditions should exist: the shipping line lessee should generate a large volume of cargo at the port (that is, it should be a major customer), and the port should possess additional facilities of the same type leased to the shipping line to prevent creating a monopoly (a public access facility should be available).

If the port does not have other similar facilities (and other customers), the creation of a monopoly may conflict with the interests of both the port and the national economy. In this respect, the following points should be kept in mind:

- Shipping lines may, at any point in time, decrease, reroute, or altogether halt their services as a result of changes in financial conditions or shifts in patterns of trade. A well-known example of this is the cancellation of the round-the-world service of United States Lines in the 1980s.
- Shipping lines often merge or enter into cooperation agreements (alliances) with other shipping lines. Such practices may result in changing sailing schedules or the establishment of special ties with other ports.
- Shipping lines may reorganize their sailing schedules for reasons of internal policy.

Box 21: Comparison of Lease Systems



Source: Author.

Signing a lease contract with an operating company may be less risky than with a shipping line because the operating company usually does not rely on a contract with one single user, but will spread the risks and safeguard its business interests by having contracts with several clients, and in the case of a contract with a locally incorporated port operator, should a legal (contract) issue arise, it is generally easier to enforce liens and other measures needed to compel lease compliance than in the case of a company whose home base is in another country.

Which form of lease is to be preferred? In general, one may conclude that if the port's principal objectives are to maximize throughput and provide maximum benefits to the local economy through increased employment, a flat rate lease may be preferable. This is often the case when a port is newly established and wants to develop its business. Or if the port's principal objective is to maximize revenues, with an initial need to subsidize the terminal lessee, the shared revenue lease may be the optimal choice.

6.2.2. Concession Agreements

A landlord port for the most part does not involve itself directly in port operations. Instead, private port operators and service providers conduct their business independently and compete in the market. The port authority acts as a neutral landlord promoting the port as a whole. Together, they represent the interests of the entire port, with the port authority in the lead.

Relations between the port authority and the private sector cover two areas: commercial relations based mainly on concession and lease agreements, and relations based on the public oversight functions of the port authority, such as enforcement of port bylaws, dangerous goods regulations, and vessel management.

Relations between landlord port authorities and private port operators have become increasingly complex, and the alignment of responsibilities have further shifted. One of the valued features of a landlord port is its clear division of respon-

sibilities. Each party is distinctly aware of its rights, liabilities, and financial responsibilities. Moreover, many governments today are seeking to diminish their financial involvement in ports and to use private sources to finance new port development, including construction of basic infrastructure such as quay walls. This implies not only an increased role for the private sector in port development, but also increased financial exposure. In such situations, a simple and straightforward lease contract often is not sufficient to cover all responsibilities and liabilities. As a result, a more complex contractual relationship, a concession agreement, has been developed.

The primary objective of concession agreements is to transfer investment costs from the government to the private sector. Concessionaires are obliged to construct and rehabilitate infrastructure and operate a facility or service for a fixed number of years. Concessions may be "positive," when a concessionaire pays the government for concession rights, or "negative," when the government pays a concessionaire for the services it provides under the agreement.

The benefits of concessions in the port sector include:

- Better and more efficient port management (especially port operations) performed by private operators.
- Avoidance of the drawbacks associated with monopolies through the inclusion of detailed concession conditions.
- The application of private capital to socially and economically desirable projects, freeing up government funds for other priority projects.
- Under certain circumstances, the creation of new revenue streams for governments.
- The transfer of risks for construction, finance, and operation of the facility to the private sector.
- The attraction and use of foreign investment and technology.

Disadvantages associated with concession contracts include:

- The need for continuing close government regulation and oversight.
- The system requires a legal framework that permits transfer of land rights to a private party.
- Winning bids are sometimes based on unrealistic financial projections, placing the sustainability of the concession agreement in jeopardy.
- The danger that a concessionaire will not properly maintain the facilities under concession, returning them to the government in bad condition, or the danger that the concessionaire and the port authority disagree on the operational need for and financial feasibility of critical investments.

Concession agreements are often developed as a part of a BOT scheme and represent specific agreements between a government or port authority and the special purpose company (SPC) established by the concessionaire to carry out construction and operation of a port development project. Under concessions, the ultimate ownership of the affected assets is retained by the national or local government, or by the port authority. At the same time, part of the commercial risks of providing and operating the assets is transferred to a private concessionaire.

In agreements involving an SPC, a port authority should ensure that:

- The SPC provides adequate service throughout the term of the concession.
- The SPC observes relevant safety and environmental protection standards.
- The charges levied on port users are reasonable and do not endanger the competitive position of the port.
- The SPC performs proper maintenance and repair of all assets to ensure that on their return at the end of the concession,

the port authority receives an operational project and facilities in good working order.

The port authority may (depending on legal strictures) hold a financial interest in the SPC created by the concessionaire, or it may not. If the port authority chooses not to participate financially in the SPC responsible for developing the port assets under a concession contract, then its role as an independent and impartial public entity does not significantly change. The only real change is in the shift in responsibility for investments from the port authority to the concessionaire.

If a port authority not only enters into a concession agreement with the SPC, but also participates in the company as a shareholder, then the port authority's role changes more dramatically. By investing risk capital, the port authority becomes more directly involved in port operations. Sometimes this situation is prohibited by law (Poland). If the venture has a monopoly in the port (such as having the only container terminal), the situation might be acceptable, although a conflict of interest may arise between the roles of port authority as an investor and as the regulator of the monopoly. If the venture competes with other terminals in the port, however, participation of the port authority in the SPC will give rise to a serious conflict of interest and will undermine its independent, neutral position.

Depending on the specific situation, a concession agreement may consist of a combination of contracts including:

- A leasehold agreement on nondeveloped land, the formal document under which the port authority grants the SPC possession of the concession area.
- A terminal access agreement, which regulates the SPC's access to the concession area, and also the access by the port authority to the area.
- A port services agreement, which regulates the provision by the port authority

to the SPC of various port services such as pilotage, towage, and dredging.

- A sponsor's direct agreement, which is an agreement between the government or port authority and the SPC dealing with the issue of competition.
- A design contract between the SPC and a technical consultant for the design of new facilities (the port authority usually has no direct control over who does the design work or the terms of appointment, but often retains the right to review any design).
- A building contract between the SPC and a construction company for construction or development work (with the port authority typically exercising some form of quality control).
- Financing documents drawn up between the SPC and its lenders to provide finance for port development; a port authority may provide partial financing.
- A management contract between the SPC and its chosen manager (operating company) for provision of management services in operating the port.

Generally, a typical concession agreement will clearly set out the terms relating to:

- The land, facilities, and cargo handling equipment included in the concession.
- The functional requirements of the port or terminal, the proposed design solution for any construction, the construction program, and time schedule, including milestones.
- Rights and responsibilities of the concessionaire and port authority (concession sponsor) with respect to the completion of the construction program.
- Human resources development and the employment of former port authority employees, if applicable.
- Activities permitted to be carried out in the concession area.

- Equal access to common areas in the port.
- Payment of fees, royalties, revenues, and canon (lease rental) to the port authority.
- Maintenance requirements for infrastructure, superstructure, and sometimes equipment.
- Termination of the concession.
- Return of land, facilities, and equipment after the concession period has expired.
- Other issues as may be required.

It is common practice that during construction, the concessionaire and the port authority use an independent test certifier to certify that all work has been carried out in conformity with the requirements of the concession agreement.

Upon the return of facilities, the SPC should be required to carry out any work needed to bring them up to an agreed-on standard. Accordingly, provisions must be included to inspect facilities and identify any deficiencies.

A concession agreement for a greenfield project is less complicated than the takeover of an existing terminal or port. In such a case, no personnel or existing facilities are acquired by the SPC. However, a terminal access agreement still must be drawn up between the government or port authority and the SPC to cover such things as the building of access roads and rail, the provision of water and electricity, and other facilities.

6.2.2.1. Master Concession. In some instances, port reform is implemented through a master concession contract, which enables a private operator to carry out many of the port functions. This type of contract has rarely been used, but it is an option. Usually, the principal choice is between granting a full master concession, in whatever form, and implementing a landlord port structure comprising the public port authority and private terminal operators. The choice between the two options considerably influences further port privatization process. When choosing a master concession, the government leaves the unbundling of port activities for a large part in the hands of the concessionaire.

It might also be expected that retrenchment costs resulting from granting a concession would primarily be borne by the government.

The government should allow the concessionaire enough freedom to structure its business according to its own requirements, otherwise the exercise does not make much sense. Lack of freedom will lower the concession's attractiveness. To make a master concession attractive for a private investor, the concessionaire should be allowed to unbundle the port business in the way it thinks fit. On the other hand, introducing a landlord port system will require a much more active role for the government in structuring the various concessions of terminal and marine activities, as well as reorganizing the port authority.

6.2.2.2. BOT Arrangements. A landlord port authority is typically responsible for constructing fairways, quay walls, and terminal areas. Such construction is usually based on a port master plan and carried out in close consultation with the future operator. Sometimes construction of such facilities has already started before agreements have been concluded with the prospective operators. This may be the case when the market demand is strong and the port authority is confident of finding clients and is prepared to take the risk that port capacity will go unused. As a rule, port authorities should permit private operators to finance most of the additional capacity (including the quay wall expansion). The port authority can then concentrate on access infrastructure and protective works relating to port extension and on renovation projects. Port authorities may sometimes have difficulties amassing the investment funds from dues or retained profits. In such cases, they have sought to acquire funds either from an IFI (such as the World Bank) or from private lending institutions. For specific port facilities, such as container or bulk terminals, private funding can be arranged through a concession agreement as described above. BOT schemes are a specialized form of concession designed to increase private financial participation in the creation of port infrastructure and superstructure without changing the landlord structure of the concerned port (see Box 22).

When designing BOT schemes, it is important to consider carefully which parts of the port can be concessionised and which parts should remain with the port authority. Generally, BOT schemes can be applied to all assets that can be exploited as a separate business. Key among these are:

- *Fairways and channels:* This part of the port infrastructure can be concessionised under a BOT scheme to require the concessionaire to dredge and maintain the fairway (and, optionally, to operate aids to navigation) for a specified period during which it derives an income from vessels using the fairways under an agreed fare system (for example San Martin-Rosario Fairway, Argentina, described in Box 23).
- *Terminals:* BOT schemes are usually applied to specific terminals. There are many examples of such terminals, such as the former P&O terminal at Nhava Sheva, India; the South Asia Gateway Terminal at Colombo; the Aden Container Terminal; and the Port of Buenos Aires, Argentina.
- *Entire port complexes:* A BOT structured as a master concession contract could cover an entire port complex comprising various terminals. Here, the SPC (or port operator) assumes de facto the role of a landlord port authority for the assets it has agreed to construct. The master concessionaire then offers subleases of various terminals to third parties. Such a scheme can approach comprehensive privatization. The only real distinctions are that under a BOT and master concession, the transfer of assets is temporary and the concessionaire has no regulatory responsibility for marine safety, environment, or vessel traffic management. There are no examples of effective implementation of this type of BOT master concession scheme, but new legislation in Madagascar provides for *une concession globale*, which is the equivalent to a master concession for small ports of local interest.

Other port assets cannot be easily concessionised as individual items. The most important of

Box 22: BOT Schemes and Port Development

In recent years, governments have recognized the benefits of developing their ports either through privatization or, more recently, through joint ventures or build-operate-transfer (BOT) schemes. In this article, we consider the application of BOT schemes to port development and some particular issues that arise.

Prime examples of the use of BOT schemes are the development of new greenfield terminals in Gujarat province (India), the new container terminal at Nhava Sheva (India), and the proposed terminals at Chittagong (Bangladesh), Colombo (Sri Lanka), and Tangiers (Morocco). This follows the growing trend as international port operators such as P&O Ports, Hutchison, PSA, and International Container Terminal Services, Inc. seek to develop global networks of terminals leveraging off their experience.

The benefit for the sponsors of a BOT scheme is that because this is a well-recognized project finance structure, they can limit their exposure to a relatively small equity injection and management involvement, with the bulk of the financing coming from limited recourse bank lending. The benefit for the government is that they will be able to obtain an expensive infrastructure development that,

given the risks involved, a developer would be unlikely to risk on a full recourse basis.

If the concession agreement is between the SPC (special purpose company set up by the sponsors to undertake the project) and a port authority (rather than the government), then in order for the project to be bankable, there may need to be an agreement (an implementation agreement) under which the government guarantees the port authority's obligations and certain undertakings are provided by the government to the SPC or directly to the sponsors that cannot be given by a port authority (such as the provision of a favorable tax treatment). The commitments from the government are likely to cover issues such as compulsory acquisition of land, free access for staff and machinery, and sometimes protection for the staff in the host country. It may also be necessary, particularly in less developed countries, to look to financing for the project and related infrastructure from the International Finance Corporation, the Asian Development Bank, or other multilateral agencies in order for the project to be bankable.

Source: Williams, Mark Lloyd, Bill Jamieson, and Norton Rose. 1999. "BOT Schemes and Port Development." *World Ports Development*, p. 20.

these are assets such as breakwaters, piers, connecting channels, intraport roads, and other common areas. These assets, however, can be part of a master concession agreement or a comprehensive privatization scheme.

A carefully crafted concession is central to the implementation of a BOT scheme. The concession contract gives the concessionaire the right to run the facility (with limited and clearly defined government oversight) and earn a commercial return on investment. The concession or BOT agreement, with the required business plan, will set out estimates of the likely revenues, costs, debt repayment, and profit for the SPC. This information is necessary to assess the project's financial viability and its debt repayment capacity. Many planned BOT projects fail because their terms are negotiated without taking into account whether or not the project is bankable. Governments often try to

negotiate a BOT arrangement at an early stage in the project preparation cycle, before the full scope of the project is known and before a regulatory oversight regime has been decided. While this might generate significant revenues for the government in the short run, it may saddle the concessionaire with an impossible-to-complete project. There are many variants of BOT-like schemes, including:

- *Build-own-operate* (BOO): Full privatization of the terminal because the port land and the facilities built on it are not returned to the government or port authority.
- *Equip-operate-transfer* (EOT): Port infrastructure already exists, but superstructure is supplied by the SPC.
- *Build-transfer-operate* (BTO): New port facilities are directly transferred to the competent authority (government or port

Box 23: San Martin-Rosario Waterway Concession

To export its products, particularly grains and cereals, Argentina depends largely on its waterways. Before 1995, the main Argentine waterway, the River Plate to Santa Fe (some 589 kilometers), was a hazard to navigation. The water was not deep enough and the river was poorly maintained. The depth of the waterway had silted up from 32 feet to 24 feet, and navigation at night became impossible.

To improve the waterway, the Argentine government issued a concession contract to deepen and maintain a 700 km plus stretch of the river and to provide aids to navigation according to IALA (International Association of Marine Aids to Navigation Lighthouse Authorities) standards. After a lengthy tendering process, Hidrovia SA (a joint venture between the Belgian dredging contractor Jan de Nul and Empema SA, an Argentinean industrial group) signed a concession contract to upgrade the waterway. The 10-year contract represents a total value of around \$650 million, of which a significant part will be realized from tolls on vessels using the safer and deeper fairway.

The first phase of the work included deepening the River Plate from Punto Indio to the Parana River and up the Parana Inferior to

Puerto San Martin to a depth of 28 feet. A second part of this phase consisted of deepening of the Parana Medio up to Santa Fe to a depth of 22 feet. Finally, this phase included reinstallation and conversion of some 500 buoys and beacons to enable panamax-sized ships to navigate safely through some particularly difficult stretches of the river.

The second phase included deepening the river channel from 28 to 32 feet.

An important feature of the project was the toll, which could be applied to the entire waterway once phase 1 was completed. The toll is calculated on a vessel's net registered tonnage and maximum draft, taking into account the services actually offered by the concessionaire. The toll is levied on all ships with a draft greater than 15 feet and is set at \$1 per net register ton. Ships with a draft less than 15 feet are charged every three to six months at a reduced rate. The waterway is divided into sections and subsections, and a ship is charged only for the sections and subsections actually transited. The concessionaire is responsible for collecting the tolls, while the Prefectura Naval has the authority to deny port clearances to any vessel failing to make payment.

Source: Author.

authority) immediately after construction. Under BTO schemes, the ownership of the assets being financed has been an issue for lenders who require asset-based collateral to secure bank loans. With BTO schemes, the only collateral is the concession contract itself, which may be insufficient. BTO schemes are necessary in countries where legal strictures do not permit private ownership of main port infrastructure (for example Croatia, Italy, Costa Rica, and the Republic of Korea).

- *Build-own-operate-transfer (BOOT):* Ownership of land and facilities conveys to the concessionaire, but is transferred back at an agreed-on price at the end of the concession period.

A special case is the wraparound BOT (WBOT); this scheme is used in the case of expansion of a

government-owned port facility by the private sector, which would hold title to the expansion only. Under such a scheme, the SPC would:

- Operate the entire port facility under a project development agreement.
- Manage the government-owned section under a management contract.
- Expand the facility under a BOT contract.

In many cases, the government effectively becomes a partner in a BOT arrangement by investing in certain portions of the infrastructure. Private parties appear to be reluctant to invest in basic port infrastructure, not only because it makes it more difficult to price use of infrastructure in a manner that permits the concessionaire to realize a reasonable return on the investment, but also because these assets

are largely immobile and have no comparable alternative use. Political instability, change of control, antiprivatization backlashes (nationalization), unexpected new tax regulations, and other governmental actions could make comprehensive BOT schemes much less attractive.

6.3. Comprehensive Privatization

Comprehensive port privatization has, until now, been developed only in the U.K. and in New Zealand. Outright sale of port land combined with a transfer of traditional public port tasks, such as safety and environmental oversight (for example, harbormaster's tasks), remains an exception. Other countries have introduced significant privatization schemes, but mostly with respect to port and terminal operations.

Comprehensive port privatization often requires the enactment of new laws, both to regulate the transfer of ownership and functions from the public to the private sector and to define the borderline between redrawn public and private responsibilities and tasks. Such legislation should establish:

- Authority for the port authority to establish a new successor company or companies to take over all or part of the authority's business.
- The right of the successor company to issue shares, either to the authority or to a third party.
- The time and manner for selling or otherwise distributing the shares to third parties, as well as for a payment to the successor company from the proceeds of the sale.
- The basic authority and mechanisms needed for the government to shape and direct the privatization.
- A levy on the proceeds of the disposal of shares of the successor company (in the U.K. this levy was set at 50 percent of the net proceeds of the sale).

- A levy on profits accruing to the successor company as a result of the disposal of port land transferred under the privatization scheme (in the U.K. this levy was set at 25 percent of the profit during the first five years, 20 percent during the next two years, and 10 percent during the last three years of the levy period).
- Provisions for the transfer of port authority personnel to the successor company (for example, the number and categories of personnel, salaries, benefits, and pension rights) or their dismissal (for example, separation package, retraining allowance, rehiring preferences).
- Terms for the transfer of public tasks, such as aids to navigation, pilotage, handling of dangerous goods, and protection of the environment to the successor company or other entity.
- The tax regime applicable to the successor companies.
- Authority for the government to dissolve the port authority once it is satisfied that the objectives of the enabling legislation have been met and to transfer all remaining property, rights, and liabilities to the successor company.

Privatization legislation may include additional elements, depending on the local situation, the structure of the former port authority and the specific legal, institutional, and socioeconomic situation in the country concerned.

In the U.K., the benefits of comprehensive port privatization most often cited are:

- The generation of revenue for the treasury.
- The ability of privatized companies to diversify their businesses.
- Greater access to capital markets.
- The removal of restrictions on investment and borrowing.
- The introduction of new industrial relations practices.

- A more commercial and entrepreneurial approach to management of the business.
- Greater competition.

These features, it was argued, would result in improvements to the port system's financial and operational performance. Note, however, that not all of the above-mentioned benefits are due exclusively to comprehensive privatization; other port reforms may generate similar benefits.

A vast majority of maritime nations considers comprehensive privatization to be incompatible with national and regional interests. Specific reasons why governments and port authorities have refrained from pursuing full privatization are diverse, but often include one or more of the following:

- A public monopoly can easily become a permanent private monopoly.
- The macroeconomic benefits of large port complexes to the regional and national economy are perceived to be threatened by comprehensive privatization.
- The danger of discriminatory treatment of customers.
- The risk that, in practice, privatization may undermine competition.
- Fear of overinvestment in and duplication of dedicated terminals for major clients, which could unbalance demand for additional public transport infrastructure.
- Neglect of the port's public service function.
- Reluctance of labor unions to abandon government protection and their fear of losing jobs.
- Reluctance of public authorities to lose political control, including patronage.
- Reluctance of public authorities to lose income generated by the port business.

Background on the U.K.'s port privatization is provided in Box 24. After more than 10 years of experience, some conclusions can be drawn

concerning the U.K.'s implementation of comprehensive privatization. Generally, the U.K. model of port privatization is highly determined by local factors and ideological considerations that are unique to the British experience. However, it appears that:

- The valuation of port assets sold to private parties was judgmental because there was no established market during the time of privatization. Subsequent trading of port shares suggests that the original prices were only 25 percent of their true market value.
- Ports were sold at significantly discounted prices. Discounted sales (in addition to the ruling that 50 percent of the sale proceeds from disposal of Trust Ports should be returned to the buyer) significantly reduced the original debt of the new port company. Certain privatized Trust Ports, therefore, realized very high profits (as high as 20–30 percent of turnover) at the expense of port users and taxpayers. Although difficult to prove, privatization via a concession, rather than outright sale, would probably have raised considerably larger revenues for the public treasury.
- Transfer of port regulatory functions to the private sector has raised serious issues. The new privatized ports are essentially self-regulating and have little incentive to safeguard and enhance inter-port competition. The driving force behind the new port owners is corporate interest rather than public interest. The question, then, is who protects the public interest?
- In terms of investments and profits, privatized U.K. ports have done better than the still-existing public ports. Privatization led to an injection of cash, but only for purchasing existing assets. Former Trust Ports claimed that investments were hampered by financial institutions looking only for short-term returns.

Box 24: Impetus behind Full Privatization in the United Kingdom

The United Kingdom (U.K.) is the only example of a country with lengthy experience in comprehensive port privatization. A number of ports in the U.K., however, still operate in the public domain. It is instructive to analyze the U.K. experience to discern the circumstances leading the U.K. to adopt a comprehensive privatization approach.

The U.K., an island where no significant city is more than 100 miles from at least two ports, has strong competition among its ports. Thus, there appears no need for antimonopoly controls specifically for the ports industry, other than those provided generally by the Monopoly and Mergers Commission for Industry.

Over the last 50 years, British port structures have evolved in response to three principal needs:

- To modernize institutions and installations, many of which dated back to the early years of the industrial revolution, to make them more responsive to the needs of users.
- To achieve financial stability and improve financial performance, with an increasing proportion of financing coming from private sources.
- To achieve labor stability and a degree of rationalization followed by a greater degree of labor participation in the port enterprises.

In the U.K., chronic labor unrest and outdated work rules constituted major reasons for port reform. In fact, the Ports Act 1991, which started the full privatization process, was introduced and could be successful only after the abolition of the National Dock Labour Scheme of 1989. This scheme gave port workers a virtual guarantee of lifetime employment, contributing heavily to inefficiency and subsequent poor financial performance in the port sector.

One of the main structural problems of the port system in the U.K.—especially among Trust Ports—was the composition of their boards, which were defined in statutes. These boards tended to be strongly representative of port users, who were by nature reluctant to authorize tariff increases sufficient to generate the revenues needed to allow for depreciation and subsequent reinvestment in port facilities. Those tariff increases that were authorized tended to be offset by increasing labor costs, which increased steadily as a result of pressure from organized labor, supported by the

National Dock Labour Scheme. The ports, therefore, operated with inadequate surpluses and with depreciation allowances based on historical costs. Without substantial surpluses, the ports had to raise the money they needed for their modernization from fixed interest loans and bonds. The net result of these factors was that the port operated with net deficits, leading to decapitalization over the postwar period, up to around 1970.

The main instrument for port privatization in the U.K. is the Ports Act 1991. This law provides for the formation of harbor authorities of limited companies under the Companies Act, and for the subsequent sale of their shares. All property, rights, liabilities, and statutory functions are transferred to the new port companies. Ministerial approval is required for the sale of shares and for the subsequent dissolution of the harbor authority. The company has to pay the government 50 percent of the proceeds of the sale of shares, less any amount set aside for assistance to maximize employee participation. If the company later sells port land, a 25 percent levy is charged on the proceeds of sales during the first 5 years, 20 percent for the next 2 years, and 10 percent for the years 8 through 10.

Under the Ports Act, after July 1993 the Transport Secretary could, in the case of harbor authorities with annual revenues of more than £5 million, initiate privatization of an unwilling harbor authority, unless that authority articulated compelling arguments against it.

Privatization began before the Ports Act 1991. The Thatcher administration privatized the British Transport Docks Board (BTDB) under the Transport Act 1981. Subsequently, the Associated British Ports was established, floating 49 percent of its shares in 1983. The BTDB's management formed the first management of the new company. The privatization of BTDB was notable for its vigorous development of national resources.

Another form of privatization was applied to another group of nationalized ports, the Sealink Harbours (British Railway Board). These ports were sold to Sea Containers Ltd. by negotiated tender.

These experiences encouraged discussions among the management of a group of Harbour Authority ports in favor of privatization by means of a management buy-out (MBO) or

Box 24: Impetus behind Full Privatization in the United Kingdom (*Continued*)

management/employee buy-out (MEBO). The legislative mechanisms needed to implement such reform are complicated, requiring the promotion of a private bill. This is costly and time consuming and may—in the event of opposition by interested parties—result in unwelcome modifications to the original bill. As a result of the perceived uncertainties associated with this process, only a few ports opted to pursue this course.

Source: Author.

- The abolition of the National Dock Labor Scheme had a more profound effect on labor stability than the selling of port land.
- Where terminals were already privately operated (landlord ports), selling the underlying port land made little difference. For example, port land at Dover (a former Trust Port) or Portsmouth (a municipal port) did not affect port output because port operations in both ports were already in private hands.
- Some nationalized and Trust Ports were sold under a M(E)BO scheme to former public officials. These managers reaped windfall profits by selling their shares at a later date.
- There are limited possibilities for port cities to redevelop obsolete port land. On the other hand, land speculation by privatized ports has become a reality because older port facilities are often situated near the valuable real estate of city centers.

The U.K. experience, therefore, has yielded very mixed results and provides few arguments supporting comprehensive privatization (the sale of port land and transfer of all public functions to the private sector) when other, less radical reforms can achieve the same objectives.

6.4. Ports as Transport Chain Facilitators

Increasingly, major terminal operators are trying to secure their strategic position by offering

complementary terminal facilities located either in the foreland or hinterland. This practice is most apparent in connection with containerized cargoes. In the event that an operator engages in operating other facilities such as inland terminals, rail facilities, or even entire port complexes abroad, its objectives and motivations are broader than those of a localized operator.

The phenomenon of supply chain management can for instance be well observed in the Port of Rotterdam, where very large crude carriers (VLCCs) discharge crude oil from various oil producing countries. Rotterdam has a virtual monopoly in this traffic in Northwestern Europe as a result of its very deep access channel to the North Sea (78 feet). Pipeline systems have been constructed to connect the port with various refineries in the hinterland, such as in Belgium and Germany. Thus, the inland transport chain is effectively controlled by one port, creating a stable environment for the transport of crude oil as well as an attractive location for balancing refineries. The Rotterdam Municipal Port Management was instrumental in developing the pipeline systems.

Some port authorities also seek to attract customers to their port facilities by facilitating or cofinancing terminal facilities outside their port area. This more expansive view of a port authority's role has the potential to influence traditional port management structures, particularly in ports structured on the landlord model.

A port authority's involvement in terminal operations beyond its homeport may not be focused solely on improving logistics chains. The main objective might be to maximize the port authority's revenue by making more widespread use of its operational expertise and management, especially in the case where the port authority acts as terminal operator as well.

Port authorities seeking to become transport chain facilitators should be aware of possible conflicts of interest and the potential loss of their neutral position. Managing a port area, including attendant public functions, is different from optimizing a logistics chain, which can be considered a supporting function for the ports

Box 25: Singapore Creates PSA Corporation

The Port of Singapore is a very successful container port and, since 1986, the busiest port in the world in terms of shipping tonnage, most of it containerized transshipment cargo. Singapore was a service port, combining land ownership, statutory functions, and cargo operations within one organization, and one of the few successful public service ports in the world. In 1996, however, the government of Singapore decided to fundamentally change the management structure of the port.

The government changed the port's structure by creating a corporatized entity (PSA Corporation) whose structure would be sufficiently flexible to permit it to operate and invest in the region, especially in container terminals located on major shipping lanes.

Corporatization of part of the port authority's business meant increased financial autonomy and generated greater cash flows. It also enhanced Singapore's position as a hub port and was expected to contribute to the economic development of Singapore and the surrounding region. The PSA Corporation will be listed on the stock exchange of Singapore.

Since the PSA Corporation has a monopoly position in Singapore, it is regulated. The Maritime and Port Authority of Singapore was established by an act of Parliament (The Maritime and Port Authority of Singapore Act 1996) to provide that oversight. The main tasks of the new authority (MPA) are to promote the use, improve-

ment, and development of the port; to control vessel movements and ensure navigational safety; to license and regulate marine services and facilities including conventional cargo terminals; and to regulate the port industry's economic behavior. The act states that no person shall provide marine or port facilities without a public license or exemption from MPA. The authority may control and fix the tariffs charged by licensees for handling and storage of origin-destination cargo (that is, nontransshipment cargo). Transshipment cargo is not regulated because it is an international and highly competitive business. The original service port structure has thus been changed into one of a landlord port.

The newly formed PSA Corporation acts as a regulated terminal operator under corporate law. It is free to operate as a global terminal operator. The question remains whether MPA will allow other private operators to carry out container operations in the Port of Singapore. The legal possibility exists, but the introduction of intraport competition has not yet materialized.

Through this process, Singapore has separated public oversight and land management functions (creating a public authority) from cargo operations (creating a corporatized terminal operating company under corporate law). Once the government divests its shares in this corporation, Singapore will have completed its transition to a landlord port.

Source: Author.

industry, and for that reason essential from a competitive point of view.

The PSA Corporation is a prime example of globalization of terminal operations. Since its establishment, it has become a leading player in the global terminal operating business and today owns, manages, and operates a chain of container terminals and logistics hubs throughout the world. Before taking on this expanded role, PSA had to change thoroughly its legal structure. Box 25 describes this transformation.

7. MARINE SERVICES AND PORT REFORM

This section discusses a variety of marine services and how they are affected by port reform.

Special emphasis is placed on how these services might be outsourced, concessioned, or privatized.

Marine services are port-related activities conducted to ensure the safe and expeditious flow of vessel traffic in port approaches and harbors and a safe stay at berth when moored or at anchor. "Safe" means that port conditions ensure that vessels using the port, the port environment, and the marine environment are protected from danger. "Expeditious" means that vessels are not unduly delayed and that the vessels' port transit times, as a part of the total turnaround time in the port, are kept to a minimum.

Although ports may define marine services differently, and may have different methods of providing them, in this section the term is used

to refer generally to services having a nautical bearing, be it maritime safety, vessel traffic efficiency, or marine environment protection.

Other services (for example, fire fighting, immigration and customs services, security, and port state control) may also affect port efficiency and safety. While important to the overall operation of a port, these other services are not dealt with in this section.

The specific marine services rendered by a port authority depend largely on the scope of the port's marine responsibilities and jurisdiction. The scope of the ports' marine jurisdictions does not follow a general rule, and there exists no international legislation or standard practice that defines the responsibilities of port authorities. Usually, marine services rendered by a port authority are geographically delimited by the area directly under control of the authority, which may encompass only the waterfront of riparian berths (the port's domain). However, there are countries where the port authority is also responsible for managing lighthouse services outside its immediate area of control. This extended area may cover harbor waters and approaches as far as the open sea.

7.1. Harbormaster's Function

Generally, the harbormaster (or port captain) manages port activities relating to maritime safety and the protection of the marine environment. The legal basis of the harbormaster's function is usually embedded in a port bylaw or, in the case of a state-owned port, in a specific law or ministerial decree. The harbormaster often has specific legal powers to act in emergency situations. Typically, the harbormaster is part of the port authority organization and heads the marine department. In some countries, the harbormaster may work for an independent public entity such as the coast guard.

The harbormaster is responsible for ensuring the efficient flow of traffic through port and coastal waters (including allocation of vessels to public berths) and—on behalf of the government or port authority—for coordinating all

marine services. The harbormaster operates out of a port coordination center (or Captain's Room), which is often part of an elaborate vessel traffic management system.

Frequently, harbormasters have police powers and act as head of the port police. The main functions of such police are enforcement of the port bylaws, especially with respect to traffic regulations, protection of the environment, and accident prevention. When part of a port authority, the harbormaster also usually serves as head of the pilotage service. In the event that the pilotage service is not part of the port authority, the harbormaster is responsible for coordination between this service and port users. Finally, the harbormaster is sometimes responsible for regulatory oversight of the carriage and storage of dangerous goods in the port area as well as for ensuring the proper use of port reception facilities.

In view of the public character of the harbormaster's responsibilities, this function is rarely privatized. To do so would raise a conflict of interest between the public interest (safety, environment, and equal treatment under the law) and private interests from the port industry. For example, since port time of ships is an important cost and operational factor, the harbormaster will always be under pressure to grant preferential treatment to shipping lines. Impartial and consistent application of operational safety measures for ships carrying dangerous or environmentally sensitive goods such as gas carriers, chemical parcel tankers, and VLCCs is essential to the safe functioning of any port. The harbormaster, therefore, should not function within a purely commercial environment, but must have freedom of action to carry out public tasks in an unimpeded and unbiased manner.

Although the harbormasters might be part of a port authority's management team, they should be free to operate in their jurisdiction as independently as possible from the commercial management of the port. In carrying out emergency measures in the event of accidents and industrial disasters, the harbormaster should

have full freedom of action and possess the ultimate authority and responsibility for directing all necessary activities. In a fully privatized port, the harbormaster should not be part of the port management, but should be employed by a national or regional maritime administration.

7.2. Pilotage

In a port reform process, pilots often are the first ones to demand privatization. Pilots usually constitute a closed group of professionals (often master mariners), who are keenly aware of their unique position in the port environment. Successful vessel management relies heavily on the efficient functioning of the pilot organization, a fact that pilots may use to maximum advantage during port reform.

In many countries, pilots (or pilot organizations) have been more or less successfully privatized. This type of privatization, however, carries the risk of creating a private sector monopoly in pilotage services, especially when pilots are privatized on a national or regional scale. Pilotage is an essential part of traffic management, and safe passage of vessels through a port area requires expert teamwork of a vessel traffic management organization (Captain's Room), tugs, mooring gangs, and pilots. A private sector pilot monopoly that has the ability to bring port operations to a complete and rapid stop represents a significant risk for ports, carriers, and shippers alike. As a consequence, retaining pilots as part of a port authority's marine department may be desirable even when other aspects of port management and operations are privatized (see Box 26).

There are two ways of privatizing of the pilotage function. Pilots can be self-employed and work under the oversight of a maritime authority that serves as the regulator and licensor of the individual pilots, or pilots can organize themselves into a private company.

The pilotage company should have its own infrastructure and facilities, such as pilot boats, communication equipment, and pilot stations. Sometimes a pilot organization (especially in

smaller ports) might also operate a vessel traffic management system (radar). The port authority or maritime administration should regulate the privatized pilot organization regarding:

- Training requirements and pilot qualifications.
- Standards for obtaining a certificate or license, and its revocation.
- Roles and responsibilities of the organization for operation of a vessel traffic management system.
- Communication equipment and channels.
- Investigation of incidents and follow-up actions.
- Pilotage tariffs and financial record keeping.
- Medical fitness and continued proficiency.
- Reporting requirements to the relevant port authority.

7.3. Tugboat Operations

Tugboat operations are typically carried out by private firms. If the volume of vessel traffic is not sufficient to support a tugboat service on a commercial basis, a port authority may be obliged to provide such service itself. Sometimes neighboring ports can share tugboat services to reach volumes sufficient to sustain a commercial operator.

In many instances, traffic density allows for only one private tugboat company to operate in the port area. In such cases, the port authority should regulate the service regarding:

- Minimum crew size.
- Minimum bollard pull.
- Communication equipment and channels.
- Roles and responsibilities relating to the vessel traffic management system.
- Tariffs.

The optimum situation would be a number of tugboat firms competing vigorously in the port. In that event, the port authority should not have to regulate tariffs. Regulation of other

Box 26: The Creation of a National Pilotage Monopoly in the Netherlands

In 1988, the Netherlands Pilotage Service became an independent organization, with the pilots acting as private entrepreneurs. The objectives of the government in the privatization of the pilot services were to reduce the governing executive burden and to improve efficiency and adequacy of the pilot services.

A public entity, the Nederlandse Loodsen Corporatie (the Netherlands Pilot Corporation, NLC) was created to manage the register of licensed pilots and be responsible for the education and training of licensed pilots. All licensed pilots constitute the NLC.

In every region, the licensed pilots have set up a legal entity, the Regionale Loodsen Corporatie (Regional Pilot Corporation, RLC). The licensed pilots are all shareholders of the Loodswezen Nederland BV (Pilotage Service of the Netherlands Ltd.), which is responsible for the exploitation of the independent private enterprise. All supporting staff is employed by this company. The company collects the pilotage fees and makes payments to the pilots in accordance with the financial statute.

The ownership of the capital goods used by the pilots is incorporated in the Loodswezen Materieel BV (Pilotage Services Material Ltd.). Individual pilots, united in regional partnerships, the “Pilot Associations,” render the pilotage services. Supporting services are

provided by the Loodswezen Nederland BV. Five foundations are responsible for education, social allowances, management of pension funds, and allowances for special situations.

Privatization in the Netherlands did not bring an end to the debate about pilot services. The government Audit Office directed harsh criticism at the privatization process and asserted that the efficiency improvements did not benefit the shipping lines or the government, but solely the pilots. Notwithstanding the Audit Office’s criticism, the Netherlands’ privatization of pilots is not considered a successful one.

To a certain extent, the government’s objectives have been attained. The increase in the amount of pilot activity and the reduced number of licensed pilots have led to higher efficiency. However, pilotage became a virtual monopoly and the efficiency improvements have led primarily to a very substantial rise in the pilots’ incomes.

The cost structure of the pilotage organization is not transparent. The fees are nonnegotiable, contrary to the fees for other marine services and pilot fees in other ports. The magnitude and rigidity of pilot fees create strong pressures to reduce other cost elements in the highly competitive maritime transport sector. Overall, the present situation has proven unsatisfactory to port users.

Source: Christiaan van Krimpen.

aspects of tug operations such as manning can be at the discretion of the port authority and will depend on the local situation.

7.4. Mooring Services

Mooring services in smaller ports can be provided by the local stevedore. In larger ports, a mooring service is usually performed by a specialized private firm. Especially in a complicated nautical situation (for example, single point mooring buoys, specialized piers for chemicals or gases, or ports with large tidal differences), mooring activities require expert skills and equipment. A port authority may choose to regulate this activity when only one specialized firm exists. Regulations should include:

- Minimum manning requirements.
- Communication equipment and channels.
- Number of mooring boats and their characteristics.
- Tariffs.

7.5. Vessel Traffic Services and Aids to Navigation

Vessel traffic services (VTS) are usually part of a port or a maritime authority. Such services are provided in port areas and in densely used maritime straits (such as the Dover Channel) or along a national coastline (for example, the coast of the Netherlands). In principle, it is possible to privatize VTS under a concession

agreement. VTS that should be regulated by the competent authority should include:

- System functions, such as vessel management and control, emergency functions, and information and communication functions.
- Types and specifications of radars and tracking software.
- Manning levels and qualifications.
- Reporting duties.
- Tariffs.

Responsibility for aids to navigation usually rests with a national maritime authority in port approaches and in coastal areas, and with a port authority in port areas. Often, provision and maintenance of buoys and beacons are contracted out. Because aids to navigation are generally part of an integrated maritime infrastructure, the costs of providing these services are included in the general port dues. Therefore, it is difficult to privatize them.

7.6. Other Marine Services

The control of dangerous goods for maritime cargoes is usually performed by a specialized branch of the port authority. The same goes for the handling of dangerous goods in port terminals. Oversight and regulation of land transport of dangerous goods is normally a responsibility of the central government. The highly sensitive and technical nature of this work makes it inadvisable for privatization.

Waste management services in ports often are privatized under strict control of a port authority or another competent body. Privatization carries risks, however, especially with respect to the disposal of dangerous chemicals. Proper waste management can be expensive for shipping lines. With high costs, ship captains might be tempted to dump waste into the sea or into port waters. Control of such dumping practices is extremely difficult, especially for chemical cargoes. To spread waste management costs, ports can include all

or part of the waste management costs in the general port dues. Transport of waste from the ship to a reception facility also poses a challenge, especially in larger port areas. Port authorities should directly provide or organize the provision of transport barges or trucks for this purpose.

The entire waste management system, including personnel and facilities, should be closely controlled by the competent authority. When private firms are engaged in waste handling, the authority should employ experts from its organization to ensure compliance with all relevant laws, rules, and regulations.

Generally, emergency response services are carried out by a variety of public organizations such as the port authority (harbormaster), fire brigade, health services, and police. Some ports have sophisticated tools available to aid in crisis management, such as prediction models for gas clouds. Such tools are often integrated in a traffic center of the local vessel traffic management system (VTMS). Private firms (for example, tugboat companies) may play a subsidiary role in crisis management in the event that they are equipped with fire-fighting equipment. Larger ports use patrol vessels and vehicles for a variety of public control functions. In some ports, such patrol vessels also have fire-fighting equipment on board. When a port does not have patrol vessels available, a contract with a tugboat company should be arranged to guarantee availability of floating fire-fighting capability. Port patrol services are part of the harbormaster's resources and, therefore, should not be privatized.

Control of dredging operations by a port authority is of utmost importance. Often, the port authority or the competent maritime administration does not have enough expertise to exercise sufficient control over both maintenance and capital dredging. Port authorities with large water areas under their control should employ sufficient competent personnel to prepare dredging contracts and oversee dredging operations. Sounding is an activity

Box 27: Prevailing Service Providers under Different Port Management Models

Model	Port administration	Nautical management	Nautical infrastructure	Port infrastructure	Superstructure (equipment)	Superstructure (buildings)	Cargo handling activities	Pilotage	Towage	Mooring services	Dredging	Other functions
Public service port	pu	pu	pu	pu	pu	pu	pu	pu	pu	pu	pu	pu
								pr	pr	pr	pr	pr
Tool port	pu	pu	pu	pu	pu	pu	pr	pu	pu	pu	pu	pu
								pr	pr	pr	pr	pr
Landlord port	pu	pu	pu	pu	pr	pr	pr	pu	pu	pu	pu	pu
								pr	pr	pr	pr	pr
Private sector port	pr	pu	pr	pr	pr	pr	pr	pu	pr	pr	pu	pu
								pr			pr	pr

Source: Author.

that should preferably be carried out (or contracted out) by the port authority itself. Dredging is usually carried out by private firms. It might be cost effective for some ports to use their own dredges, especially when continuous and important maintenance dredging is required.

Box 27 summarizes the prevailing approaches for handling the most important port functions.

REFERENCES

- Baird, Dr. Alfred J. 1999. "Port Privatisation, Objectives, Extent, Process, and the United Kingdom Experience." Napier University, Edinburgh, 4th World Port Privatisation Conference, London, 22–24 September 1999.
- Drewry Shipping Consultants Ltd. 2005. *Annual Review of Global Container Terminal Operators – 2005*. Drewry House: London.
- Heinrich, Michael. 1999. "Port Efficiency—The Public-Private Partnership." (Port of Hamburg) *World Ports Development*, p.16.
- Holocher, Dr. Klaus Harald. 1990. *Port Management Textbook, Volume 1*. Bremen.
- McDonagh, Stephen. 1999. *Port Development International*.
- Shaw, William, and Thompson. 1996. "Concessions in Transport." TWU Papers, Discussion Paper, World Bank, Washington, DC.
- Williams, Mark Lloyd, Bill Jamieson, and Norton Rose. 1999. "BOT Schemes and Port Development." *World Ports Development*, p. 20.
- World Bank. 1992. *Port Development Strategies for Asia, Phase 1*. National Ports and Waterways Institute, Louisiana State University.
- Saundry, Richard and Peter Turnbull. 1997. Private profit, public loss: The Financial and economic performance of U.K. ports. *Maritime Policy Management* 24(4): 319.
- UNCTAD (United Nations Conference on Trade and Development). 1984. *Handbook for Port Planners in Developing Countries*. UNCTAD.
- UNCTAD. 1998. *Guidelines for Port Authorities and Governments on the Privatization of Port Facilities*. UNCTAD/SDTE/TIB/1.



PORT REFORM TOOLKIT

SECOND EDITION

M O D U L E 4

LEGAL TOOLS FOR PORT REFORM



THE WORLD BANK

© 2007 The International Bank for Reconstruction and Development / The World Bank

All rights reserved.

The findings, interpretations, and conclusions expressed herein are those of the author(s) and do not necessarily reflect the views of Public-Private Infrastructure Advisory Facility (PPIAF) or the Board of Executive Directors of the World Bank or the governments they represent.

Neither PPIAF nor the World Bank guarantees the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of PPIAF or the World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

The material in this work is copyrighted. Copyright is held by the World Bank on behalf of both the World Bank and PPIAF. No part of this work may be reproduced or transmitted in any form or by any means, electronic or mechanical, including copying, recording, or inclusion in any information storage and retrieval system, without the prior written permission of the World Bank. The World Bank encourages dissemination of its work and will normally grant permission promptly.

For all other queries on rights and licenses, including subsidiary rights, please contact the Office of the Publisher, World Bank, 1818 H Street NW, Washington, DC 20433, USA, fax 202-522-2422, e-mail pubrights@worldbank.org.

ISBN-10: 0-8213-6607-6

ISBN-13: 978-0-8213-6607-3

eISBN: 0-8213-6608-4

eISBN-13: 978-0-8213-6608-0

DOI: 10.1596/978-0-8213-6607-3

MODULE FOUR CONTENTS

1. Introduction and Overview	131
1.1. National Ports Commission	132
2. General Approach for Drafting a Ports Law	132
2.1. Preface	134
2.2. Definitions	134
2.3. Objectives and Functions of a Port Authority	136
2.4. Corporatized Ports—Special Considerations	138
2.5. Implementation Problems	138
3. Port Authority and Terminal Operations	139
3.1. Licensing	140
3.2. Marine Management	140
3.3. Financial Issues	142
3.4. Violations	143
3.5. Appealing Port Authority Regulations	143
3.6. Liability for Damages	143
4. Port Regulations	145
4.1. Port Operating Regulations	145
4.1.1. Vessel Traffic Management	145
4.1.2. Pilotage	146
4.1.3. Order and Safety in the Port	146
4.1.4. Reporting and Communication	146
4.1.5. Dangerous Cargoes: Transport and Handling	146
4.1.6. Pollution and Reception Facilities	149
4.1.7. Regulation of Other Port Functions	149
5. Port Competition Modalities	150
5.1 Legal Structure of Port Competition Regulation	151
6. Full Concession Agreements	154
6.1. Full Concession, Leasehold, and Land Rent	154
6.2. Full Concession and BOT Schemes	154
6.3. Full Concession Agreement Structure	156
6.3.1. Preconcession Documents	157
6.3.2. Definitions	157
6.3.3. Conditions Precedent Sample	161
6.3.3.1. Part 1—Conditions Precedent to be Fulfilled by the Operator	161
6.3.3.2. Part 2—Conditions Precedent to be Fulfilled by the Port Authority	162
6.3.4. Term of the Concession Agreement	163
6.4. Concession Parties	163
6.5. General Rights and Obligations of the Operator	164
6.6. General Rights and Obligations of the Port Authority	165
6.7. Transfer of Rights, Obligations, and Assets	166
6.8. Performance Parameters	168
6.8.1. Productivity Targets	169
6.9. Transfer of Employees	171
6.10. Force Majeure	171
6.11. Lease of Facilities	173
6.12. Site Access	175
6.13. Governing Law	175

6.14. Freedom to Set Tariffs	175
6.15. Taxes	175
6.16. Concession Fee	176
6.17. Insurance and Indemnity	176
6.18. Physical Security	176
6.19. Unclaimed Cargo and Carriers	178
6.20. Information and Communication	178
6.21. Termination and Prolongation	179
6.21.1. Termination Due to Noncompliance	179
6.21.2. Termination Compensation	179
6.21.3. Option to Continue	180
6.21.4. Bankruptcy	181
6.22. Expiration of Concession	182
6.23. Arbitration	182
6.24. Costs	183
6.25. The Tender Process and Transaction Preparation	184
6.26. Miscellaneous Conditions	186
7. BOTs and Construction	186
7.2. BOT and BTO Arrangements	187
7.2. BOOT Arrangements	188
7.3. Functional and Technical Design under a BOT Arrangement	188
7.4. Design and Construction Flaws	190
7.5. Building Conditions	190
7.6. Construction Program	191
7.7. Zero Date	191
7.8. Drop Dead Date	192
7.9. Extension Events	192
7.10. Completion Tests and Take-Over	192
7.11. Hand-Back and Transfer of Facilities	193
7.12. Lender Security	194
7.13. Change in Law	194
Annex I—Checklist of Concession/BOT Agreement Provisions	196

BOXES

Box 1: Singapore: Transforming a Service Port into Landlord Port	133
Box 2: Panama: Enabling Legislation for a Concession	134
Box 3: Eastern Europe: Decentralizing Port Management	134
Box 4: Latin America: Allowing Private Stevedoring Operations	136
Box 5: Object of Port of Rotterdam, Ltd.	136
Box 6: Caution: Single National Ports Authority can be Hazardous to Economic Health	137
Box 7: Functions of Corporatized Port Authorities	137
Box 8: Division of Shares in Corporatized Port Authority	138
Box 9: Violated Neutrality: A Port Director with Two Hats	140
Box 10: Maritime Domain: A Potential Impediment to Port Development	141
Box 11: Marine Management Tasks to be Separated from Corporatized or Privatized Port Tasks	142
Box 12: Harbormaster's Powers and Functions	142
Box 13: Reference Clauses on General Regulations of the Authority	144
Box 14: Reference Clauses on Specific Regulations of the Authority	144

Box 15: Reference Clauses on Damages	144
Box 16: Reference Clauses on Liability	145
Box 17: Reference Clauses on Port Safety and Environmental Protection	147
Box 18: Reference Clauses on Reporting	148
Box 19: Reference Clauses on Loading and Discharging Dangerous Cargoes	149
Box 20: Reference Clauses on Waste Management	150
Box 21: The Buenos Aires Case	152
Box 22: Sample Port Competition Act	153
Box 23: Full Concession, Lease, and Rent Contracts—Landlord Port	155
Box 24: Main Schedules to a Concession or BOT Agreement	157
Box 25: Reference Clause on Term of Concession	163
Box 26: Reference Clause on Nomination of Operator of a Container Terminal	164
Box 27: Reference Clauses on General Rights and Obligations of the Operator	165
Box 28: Reference Clauses on General Rights and Obligations of the Port Authority	166
Box 29: Reference Clauses on Permitted Activities	167
Box 30: Reference Clauses on Newly Built Assets in the Concession Area (BOT arrangement)	167
Box 31: Reference Clauses on Transfer of Assets	169
Box 32: Reference Clause on Productivity Targets	171
Box 33: Reference Clauses on Selection and Transfer of Personnel	172
Box 34: Reference Clauses on Force Majeure	172
Box 35: Reference Clauses on Lease of Facilities	173
Box 36: Reference Clauses on Site Conditions	173
Box 37: Reference Clauses on Access to the Site	175
Box 38: Reference Clause on Governing Law	175
Box 39: Reference Clause on Price Discrimination	176
Box 40: Reference Clause on Taxes	176
Box 41: Reference Clauses on Concession Fee	177
Box 42: Reference Clauses on Insurance and Indemnity	177
Box 43: Reference Clauses for Security	178
Box 44: Reference Clauses on Unclaimed Cargoes	178
Box 45: Reference Clauses on Information and Communication	179
Box 46: Reference Clause on Termination by the Port Authority	180
Box 47: Reference Clause on Termination by the Operator	180
Box 48: Reference Clauses on Termination Due to Noncompliance	181
Box 49: Reference Clauses on Prolongation	181
Box 50: Reference Clauses on Bankruptcy	181
Box 51: Reference Clauses on Expiration of Concession	183
Box 52: Reference Clause on Arbitration	184
Box 53: Reference Clause on Costs	185
Box 54: Clauses on Miscellaneous Conditions	186
Box 55: Reference Clauses on Construction and Maintenance (Landlord Port Situation)	187
Box 56: Reference Clauses on Scope of a Concession Agreement (including a BOT arrangement)	189
Box 57: Reference Clauses on Construction Program	190
Box 58: Reference Clauses on Infrastructure Design	191
Box 59: Reference Clauses on Technical Design and Construction Problems	191
Box 60: Reference Clauses on Site Conditions	192
Box 61: Reference Clauses on Construction	192
Box 62: Reference Clauses on Zero Date	193

Box 63: Reference Clauses on Drop Dead Date	193
Box 64: Reference Clauses on Extension Events	193
Box 65: Reference Clause on Take-Over Tests	193
Box 66: Reference Clauses on Hand-Back of Facilities	194
Box 67: A Case of Legal Limitations Adversely Affecting a Port Concession	195
Box 68: The Case of St. Maarten	196
Box 69: Reference Clause on Lender's Security	197
Box 70: Reference Clauses on Law Changes	198

Acknowledgments

This Second Edition of the Port Reform Toolkit has been produced with the financial assistance of a grant from TRISP, a partnership between the U.K. Department for International Development and the World Bank, for learning and sharing of knowledge in the fields of transport and rural infrastructure services.

Financial assistance was also provided through a grant from The Netherlands Transport and Infrastructure Trust Fund (Netherlands Ministry of Transport, Public Works, and Water Management) for the enhancement of the Toolkit's content, for which consultants of the Rotterdam Maritime Group (RMG) were contracted.

We wish to give special thanks to Christiaan van Krimpen, John Koppies, and Simme Veldman of the Rotterdam Maritime Group, Kees Marges formerly of ITF, and Marios Meletioui of the ILO for their contributions to this work.

The First Edition of the Port Reform Toolkit was prepared and elaborated thanks to the financing and technical contributions of the following organizations.

The Public-Private Infrastructure Advisory Facility (PPIAF)

PPIAF is a multi-donor technical assistance facility aimed at helping developing countries improve the quality of their infrastructure through private sector involvement. For more information on the facility see the Web site: www.ppiaf.org.

The Netherlands Consultant Trust Fund

The French Ministry of Foreign Affairs

The World Bank

International Maritime Associates (USA)

Mainport Holding Rotterdam Consultancy (formerly known as TEMPO), Rotterdam Municipal Port Management (The Netherlands)

The Rotterdam Maritime Group (The Netherlands)

Holland and Knight LLP (USA)

ISTED (France)

Nathan Associates (USA)

United Nations Economic Commission for Latin America and the Caribbean (Chile)

PA Consulting (USA)

The preparation and publishing of the Port Reform Toolkit was performed under the management of Marc Juhel, Ronald Kopicki, Cornelis "Bert" Kruk, and Bradley Julian of the World Bank Transport Division.

Comments are welcome.

Please send them to the World Bank Transport Help Desk.

Fax: 1.202.522.3223. Internet: Transport@worldbank.org

4

MODULE

Legal Tools for Port Reform

SECOND EDITION

1. INTRODUCTION AND OVERVIEW

Transformation of port structures often requires new legislation. This module identifies fundamental points to consider when developing such legislation, with examples from existing port reform regimes, although the examples provided should be used for reference purposes only. Because every country has a unique legal and institutional context, it is impossible in practice to present a model law that fits the wide variety of fundamentally different legal systems. With such a diversity of legal and policy regimes worldwide, the exact purpose of a port law may vary from country to country. Sometimes an existing law is changed to accommodate new institutional structures that were made necessary because of changed socioeconomic conditions. Other times, a law lays the groundwork for the public sector to participate in port development and infrastructure investments, or enables the private sector to carry out port activities that previously resided in a public sector monopoly. The reference provisions presented in this module are not meant to cover completely each and every issue. They have been derived from a large variety of laws, regulations, and contracts. They are meant to be used as tools for port reform to shape the legal foundation for marketable and bankable regulatory and contractual arrangements.

The examples are derived from a variety of institutional structures covering not only tasks and responsibilities of port authorities, but also related institutions such as a national ports council (or commission), a port fund,

and others. In the case of a port authority that is part of a municipality, no specific law is necessary because the legal basis of such authority is part of municipal legislation. However, the fundamental elements of this module

might still be considered in drafting such legislation.

It is often thought that the sole purpose of a ports law is to create an institutional framework to develop and manage seaports. It should, however, be emphasized that a ports law should also establish a flexible business framework that enables a port authority to compete successfully in national and international transport markets.

A ports law often creates one or more port authorities, as well as a host of other port-related bodies, such as a ports council/commission or similar advisory or regulatory body. It might also set operational conditions for private operators. Finally, such a law may regulate organizational and financial relations between public organs (such as the state, regional governments, or municipalities) and the maritime administration.

There are various legal acts that relate to ports policy, port management, and port operations. Therefore, when discussing port laws in this module, the expression “port law” includes among other policy laws, port competition laws, port privatization laws, harbor regulations, and statutes of (public) port enterprises.

1.1. National Ports Commission

Particularly in countries where the port sector is still under development, the national government has an important role to play. This role may be expressed in a national ports policy formally authorized by the parliament. The preparation and implementation of this policy usually is the responsibility of a transport or port ministry.

Sometimes, to involve major sectors of the ports community in the development, a national ports commission (or ports council) is established by law. Generally, the commission has an advisory role. The general objective of a national ports commission is to provide input to the development of a national ports policy. Generally, the commission provides this advice to the council of ministers through the minister of transport.

Commissions may be asked to contribute to the development of the national ports policy by offering advice on:

- The prioritization of policies that will maximize private participation in the port sector.
- The preparation of a national ports (restructuring and investment) plan based on an objective evaluation of project proposals received from the port authorities.
- The allocation of public sector funding for port development.
- The administration of an investment fund established specifically to finance port development.
- Measures to prevent monopolistic practices in the ports and to encourage competition.
- The role of the maritime sector in the overall national transport strategy and national export policies.

The president and or chairman and the members of the commission should be appointed from among persons with extensive experience in port management; shipping; inland transport; commercial, financial, or economic matters; applied science or the organization of workers; or have demonstrated their ability in other fields of port-related operations (including the fishing and the shipbuilding industries, in particular).

If a country decides to institute a ports commission, it should be empowered with the necessary tools to function effectively. Therefore, a ports commission should be assisted by an executive secretary and a small professional staff. Members of the staff should receive remuneration in accordance with applicable conditions for civil servants. Finally, the costs of the commission should be borne by the state to ensure its independent status.

2. GENERAL APPROACH FOR DRAFTING A PORTS LAW

A port authority is usually established by a specific ports law, either as a public or commercial entity (for example, joint stock or limited liability

company). The following two examples illustrate some key juridical attributes to be considered.

The ports law in Singapore states:

There is hereby established a body to be known as the Maritime and Port Authority of Singapore, which shall be a body corporate with perpetual concession and a common seal, by that name, be capable of: a) suing and being sued; b) acquiring, holding, and developing or disposing of property, both movable and immovable; and c) doing and suffering such other acts or things as bodies corporate may lawfully do and suffer.

Some countries have opted for a corporatized port authority. To that end, the Polish ports act states:

Joint Stock Companies, administering ports of fundamental importance to the national economy, are established under this Act and operate on the basis of the Commercial Code, unless otherwise provided for by this Act.

Companies mentioned in paragraph one have a public service character.

The Belgian main ports (Antwerp, Ghent, Oostende, and Zeebrugge) are regulated by the Flemish Port Decree, 1999 (Official Gazette No. 99/992). The relevant provisions (Article 4) are:

- (i) Port authorities are public entities. They possess the exclusive powers to deal with port issues. These issues cannot be transferred, either in whole or in part.
- (ii) Entities participating in port authorities shall have a public character.
- (iii) Port authorities are subject to corporate law, unless incompatible with the provisions of this decree or other legal acts.

In Asia and Africa, the institutional structures of many ports were often patterned after their European counterparts. The vast majority were public service ports responsible for all port services. Dockers were employed by the public port

authority or port trust. In these countries, new port laws are aimed at converting service ports into landlord ports, requiring the separation of public landlord responsibilities from cargo handling activities (see Box 1). New port laws regulating the tasks and responsibilities of a (public) landlord port authority have been combined

Box 1: Singapore: Transforming a Service Port into Landlord Port

A useful example of a port authority structure change is represented by two laws enacted in Singapore. Prior to the change, the port functioned as a public service port. As the port authority increasingly became engaged in terminal operations abroad and other commercial activities, public functions and commercial functions were separated. A new statutory board (the Maritime and Port Authority of Singapore [MPA]) was set up. The commercial and marine activities of the original Port of Singapore Authority were corporatized. Two acts implemented the changes, one providing for the dissolution of the Port of Singapore Authority and the other establishing the MPA (Singapore Acts 6 and 7, 1997). The prefaces of these laws are, respectively:

- “An Act to provide for the dissolution of the Port of Singapore Authority and for the transfer of its property, rights, and liabilities to a successor company and others, to make financial arrangements for that company and for matters connected therewith, to repeal the Port of Singapore Act (Chapter 236 of the 1985 Revised Edition) and to make consequential amendments to other written laws. Be it enacted by the President with the advice and consent of the Parliament of Singapore, as follows...”
- “An Act to establish and incorporate the Maritime and Port Authority of Singapore, to provide for its functions and powers, and for matters connected therewith; and to repeal the National Maritime Board Act (Chapter 198 of the 1985 Revised Edition) and to make consequential amendments to certain other Acts. Be it enacted by the President with the advice and consent of the Parliament of Singapore, as follows...”

Source: Author.

Box 2: Panama: Enabling Legislation for a Concession

In Panama, a concession contract was concluded between the state and a private operator. The text of the contract was included in a specific law authorizing its conclusion. The opening text of the law is: “Law of 1995, whereby Development, Construction, Operation, Administration, and Management Contract of a container Terminal in the North Coco Solo Area, Province of Colon, between the State and the Corporation Colon Container Terminal, S.A. is approved.”

Source: Author.

recently with the establishment of private operating companies in accordance with the national commercial code.

Some situations require a law to specifically regulate the development and construction of a terminal by a private operator through authorizing the award of a concession contract (see Box 2).

A ports law may be very detailed or merely set forth basic principles of port management and operation. Regardless of the form adopted for the port’s regime, to create a solid basis for clearly delineating port functions and responsibilities, a core set of provisions should be included. These provisions and their key features are described below.

2.1. Preface

A preface states the objective of the law and some general conditions. The approach adopted is a function of the underlying legal system. For example, some countries use a combination of statute and implementing regulations; others pass a decree that applies a privatization or concession law to a port or ports. The objective might be to create new port authorities or to reform an existing port authority. Also, the preface should indicate whether transfer of rights to private parties (for example, lease, concession, or build-operate-transfer [BOT]) is permitted. It might be necessary in such instances to make corresponding changes in laws governing public property (for example, in the case of the “Maritime

Box 3: Eastern Europe: Decentralizing Port Management

In the past, Eastern European ports were managed mainly by centralized authorities. After the introduction of market reforms, it became necessary to decentralize port management and modernize former state-dominated structures. More independent port authorities were established, often with some form of state participation. The prefaces of the relevant laws reflect these changes:

- “The Act regulates the principles for establishing governing bodies for ports, their organizational structure, and their operation. The limits of port areas are stipulated in separate regulations. The Act is not applicable to naval ports.” (Port Law of Poland, December 20, 1996)
- This Act establishes principles of operation and management of ports and the safety of navigation within port areas.” (Port Law of Latvia, June 22, 1994)

Source: Author.

Domain”). Finally, the law should regulate the organizational, financial, and fiscal relations between the related public organs (such as the national government, regional governments, and municipalities) as well as with regulators, such as the maritime administration, the fiscal authority, and the competition commission.

Two approaches have been developed for drafting the preface of a typical port law: a preface stating only the objective of the law (see Boxes 3 and 4), or a preface of general conditions, elaborating on the objective and a number of boundary conditions. In several cases, the definitions used in the law are included in the first section.

2.2. Definitions

The second element of a ports law should comprise definitions of the main terms used in the law. The port business, especially as a specific mix of public and private interests and financiers, will require that the interplay of these interests be balanced and result in well-circumscribed functions. The law should likewise define maritime and port infrastructure, identifying which

are under the authority of the state and which are under the authority of a port authority. Sometimes it may be necessary to designate several types of ports, such as “ports of national interest” and “ports of regional interest,” or as in the French Ports Law of 1965, *Ports Autonomes and Ports d'Intérêt National*, with each exhibiting its own definition.

It is highly advisable to precisely define critical functions, features, and port administration bodies. In the port field, investors and lenders will review definitions of a port law closely to determine if there are ambiguities that may affect security interests or lender rights. Because there is no internationally accepted terminology, the following list is only an illustrative compilation of the most commonly used terms.

Often words used in legal agreements are capitalized to indicate they have been defined.

Aids to navigation: All floating, stationary, and on-shore objects dedicated to assisting sea-going and inland vessels in the safe navigation at sea and in inland waters including buoys, beacons, lighthouses, vessel traffic systems, tidal measuring systems, and fixed objects and markers.

Authorized pilot: A pilot employed or authorized by a competent authority to pilot vessels.

Basic infrastructure: Sea locks, breakwaters, piers, sea walls, and other protective works not directly involved in the transfer of goods; maritime accesses and canals; primary roads to and from the ports; and also railway tracks, pipelines, and buffer zones situated at the borders of the port.

Concession: An agreement entered into by a person with the port authority in which such person becomes entitled and obliged to provide port and marine services in a specified area of a port, or in a port in its entirety, including or excluding the right to construct, alter, and maintain basic and operational infrastructure, superstructure, and equipment, subject to the terms and conditions set out therein.

Concessionaire: Any person who has concluded a concession agreement with the port authority.

Dues: Port dues, cargo-related dues, and pilotage dues.

Harbormaster: The harbormaster appointed by law and such harbormaster's appointees, representatives, deputies, or delegates appointed in accordance with such law.

Marine services and facilities: All services performed in port areas and the approaches thereto, in respect to towage, mooring of vessels, sounding of navigable waters, the lifting of sunken vessels, salvage of vessels, fire fighting aboard vessels, and all related activities as well as the provision of facilities, vessels, and equipment to perform these activities, but not necessarily including pilotage.

Maritime access: Fairways, dredged channels, and other waters providing access to ports, equipped with aids to navigation for commercial sea-going and inland vessels.

Operational infrastructure: Port facilities and constructed works dedicated to commercial handling of sea-going and inland vessels, such as quay walls, piers, jetties, roll-on roll-off facilities, berthing aids, and also secondary connecting roads within the port area, including all appurtenances and components thereof.

Pilot: Any person not belonging to a vessel who has the conduct thereof.

Port authority: Every port undertaking agency established under the subject law.

Port (or seaport): One or more port areas forming an autonomous functional and economic entity, of which the boundaries are established by authority of the relevant government body and whose activities are governed in accordance with national or other relevant law.

Port dues: Dues levied on a vessel for entering, using, and leaving the port.

Port infrastructure: All infrastructure located within the seaport or in the land and sea accesses containing basic infrastructure, operational infrastructure, and superstructure.

Box 4: Latin America: Allowing Private Stevedoring Operations

Until the 1980s, Central and South American ports were usually part of the state and managed as public service ports. During the 1990s of the last century, many countries in the region have changed their port structures to allow private stevedoring operations. The general conditions of the Mexican ports law (1993) describe the objectives of such a law: “This Act has a public character and shall be observed in the entire territory of the State. The objective of the law is to regulate ports, terminals, marinas, and port installations, their construction, use, acquisition, exploitation, operation, and ways of administration, as well as the execution of port services.”

Source: Author.

Port services and port facilities: Port terminal services and facilities for handling, storage, and transportation of goods on port land and for handling of passengers carried by vessels.

Public license: A license granted under a port act and for the purposes of the act; a public licensee shall be construed as the recipient of a public license and subject to its terms and conditions.

Superstructure: Sheds, silos, warehouses, and housed facilities of all kinds, and all infrastructure and equipment not identified under basic and operational infrastructure.

Vessel: Includes ships, boats, air cushioned vehicles, or floating rigs or platforms used in any form of operations at sea or in port, or any other description of a vessel.

2.3. Objectives and Functions of a Port Authority

The third section of a ports law should delineate the objectives and functions of a port authority. Usually, a port authority exercises jurisdiction over a port territory, which should constitute an economic and functional unit. The establishment of a port authority as this legal entity is one of the major elements of a ports law (Box 5). The law provides the legal status for the port authority,

Box 5: Object of Port of Rotterdam, Ltd.

The Port of Rotterdam, Ltd. (Haven Bedrijf Rotterdam N.V.), established in 2004, has the legal structure of a limited liability company according to the Dutch Commercial Code. No other specific ports legislation is applicable. Article 2.1 of its statutes reads as follows:

- “The object of the enterprise is to exercise or cause to be performed the port business and within this framework the furtherance of strategic position of the Port of Rotterdam within the European perspective, both on short and long term.
- More specifically, the purpose of the enterprise is:
 - ~ The furtherance of an effective, safe, and efficient vessel traffic management, the responsibility for maintaining order and safety in the port area and the power to act as competent authority therein.
 - ~ The development, construction, management, and exploitation of the port and industrial area of the Municipality of Rotterdam.
 - ~ Contributing to the city’s development, development of port areas located therein, and the improvement of living conditions within the city and the Rotterdam region, even in case such activity is (initially) not profitable.”

Source: Author.

which might be a public entity or a corporate entity under the commercial code of the relevant country, such as a joint stock company. The law should also indicate which public entity has the right to establish a port authority in the event that the state is not doing so. This might be a region, province, city, or a combination.

In the case of corporatized or privatized port authorities, linkages will be needed to the mercantile, corporate, or commercial code. Provisions should be included on shareholding, for example, or conforming changes made to commercial or corporate laws.

There is an important point affecting port authorities established as joint stock companies. Generally, port authorities are responsible for

operating the entire port. In the event of a landlord port situation, a corporatized or privatized port authority must ensure a level playing field among many terminal operators and other service providers. To avoid conflicts of interest, the law should explicitly regulate the powers and duties of the port authority in relation to private operators with respect to investments and share participation.

Powers and duties of a port authority regarding land management require specific attention in the law. A landlord port authority is responsible for land management and overall port development. Special attention should be paid to the regulation of ownership and use of port land under the law. A port authority may own the land or have a perpetual or time-specific right to use the land. Powers to act as a landlord may need to be specifically elaborated, as well as the limitations of such powers, such as the interdiction of the sale of port land. While the authority is engaged in, or provides for, construction of operational infrastructure, the maintenance of such infrastructure constitutes a duty for the authority. The ports law should specify the exact responsibilities of the port authority and those of the state with respect to investments in basic and operational infrastructure, maritime accesses, port access roads, and rail and waterway infrastructure as well as hinterland connections.

Generally, the objective of a port authority is to efficiently and economically manage the port. In a public landlord port, its objectives should be aligned with the macroeconomic goals of the state and the needs of the region, such as the creation of jobs, strengthening of the economic structure, and so forth (see Box 6).

Fundamental port functions that should be considered in the law include (see also Box 7):

- Administration, management, and physical development of the port area.
- Maintenance, rehabilitation, renovation, and construction of basic and operational infrastructure.

Box 6: Caution: Single National Ports Authority Can be Hazardous to Economic Health

Since ports generally compete among themselves both in the international and national transport markets, a national ports authority, comprising all ports of a country, is not a preferred option. Occasionally, a national ports authority is established on the grounds that there is only one major port in a country with a number of smaller ports with a regional function. However, even in such a case, a more effective system could consist of an autonomous port authority for the major port, and a secondary ports directorate within the ministry of transport that exercises the overall tutelage on the national port system.

Source: Author.

Box 7: Functions of Corporatized Port Authorities

The Polish ports law chose a straightforward landlord model for its corporatized port authorities. The functions of the entities managing the ports include the following:

- Managing land and infrastructure.
- Forecasting, scheduling, and planning port development.
- Construction, development, modernization, and maintenance of port infrastructure.
- Acquisition of new land for port use.
- Maintenance, rehabilitation, renovation, and construction of operational infrastructure (usually the construction of basic infrastructure is a responsibility of the state).
- Establishment of contractual (concession or lease) and other conditions (public license) for private operators to provide port services.
- Coordination of berthing and unberthing of vessels.
- Ensuring public order in the port area.
- Safeguarding the port environment.
- Port marketing.
- Port security.

2.4. Corporatized Ports—Special Considerations

If a port authority is established as a joint stock company, matters of share issuance and capitalization arise. The ports law should include clauses pertaining to the way this is handled, consistent with the provisions of relevant commercial, mercantile, and securities laws.

One key consideration is whether a government, national or local, intends to exercise direct influence in the port authority via its shareholder's rights (for example, the nomination of the chairman of the board or the port director). In the event of a corporatized authority, the government or other public body usually owns 100 percent of the shares. In some countries, the shares are divided between a national government, local government, and other public or private shareholders in such a way that the involved public entities retain a majority voting position. In some corporatized situations, voting shares can be allocated to private investors. Once private investors have a majority voting position, the port authority can be considered as being privatized (see Box 8).

In general, due to the (semi) monopoly position of landlord ports and the public interests involved, it is not advisable to allocate shares to private investors. This may cause serious conflicts of interest; private investors mainly seek to increase shareholder value whereas the public sector may take considerations of general interest into account. Also, flotation of all or part of the stock is not considered a viable option for the same reason.

Capitalization can be effected through transfer by law of all relevant properties to the new port authority. These might include all operational infrastructure, related land, and superstructure, including such assets as equipment and other rolling stock. When a landlord port is created together with a new corporatized port authority, one or more separate operating companies with the legal structure of a limited liability company might be set up to take title to the superstructure and equipment. The value of the

Box 8: Division of Shares in Corporatized Port Authority

One example of a government seeking to be directly involved in port management is Poland. Under the new ports law, the Polish state retains 51 percent of the shares of its corporatized national ports, thus exercising control over the board of directors, and gives these shares preferential treatment in the event of liquidation of a port enterprise. The relevant clauses are as follows:

- “A joint stock company named ‘Port Authority of Gdansk S.A.’ shall be established by the State Treasury, which will retain at least 51 percent of the company's shares whilst the Municipality of Gdansk will hold at least 34 percent of the shares.”
- “A joint stock company named ‘Port Authority of Gdynia S.A.’ shall be established by the State Treasury, which will retain at least 51 percent of the company's shares whilst the Municipality of Gdynia will hold at least 40 percent of the shares.”
- “A joint stock company named ‘Port Authority of Szczecin-Swinoujscie’ S.A. shall be established by the State Treasury, which will retain at least 51 percent of the shares, whilst the Municipalities of Szczecin and Swinoujscie will each hold 24.5 percent of the shares.”
- “The shares owned by the State Treasury and the Municipalities are registered shares and have a preferential nature, establishing priority rights to port authority assets in the event of liquidation.”

Source: Author.

initial shares could be determined on the basis of their book or market value, whichever is less.

Depending on the port policy of the country concerned, limits can be imposed on the sale of shares. In many cases a government may want to retain the right to determine port policy. This requires the possession of the majority of the voting shares, or of “golden shares.” A clause in the law guaranteeing such majority position should then be considered.

2.5. Implementation Problems

Implementing a new ports law presents a wide variety of issues and often results in

disagreements among the parties involved. The major issues encountered in implementing new ports laws are described below.

Effects of port reform on the existing work force. Port reform is often triggered by over-staffing at ports and restrictive labor practices. However, the objective of a new ports law is not labor reform, but port reform. Labor reform may be a by-product when a port must rationalize its workforce to improve efficiency and reduce costs. A ports law might set conditions for the transfer of personnel from the existing port authority to the new one. Since port reform is often accompanied by a reduction of the size of the port's workforce, the ports law may establish and regulate a port workers fund to soften the impact of labor force reductions. The fund can be used for redundancy payments or retraining programs.

Valuation of assets and the capitalization of a new port authority. A valuation should be conservative. Often, ports in the process of reform have to dispose of a large variety of outmoded equipment and poorly maintained port infrastructure and buildings. This obsolescence and maintenance backlog must be fully taken into consideration when assessing the value of the port's assets. Otherwise, private sector bids in port privatization may reflect significant discounts as the bidders take into account the need to pay for the substantial investments that will be required to modernize and upgrade the infrastructure.

Replacing top management. Ports functioning within the framework of competitive markets require a different management ethic to lead the difficult reform process and steer the new port authority safely through the shoals of competition and other commercial activities.

Creation of a clear definition of the port area. This definition should be established at the outset of reform and not be postponed to a later date (for example, until later decree of a council of ministers). Significant differences of opinion often arise with port cities as to which areas are part of the port and which areas are part of the

city. If a decree is required by the ports law, it should be enacted at the same time as the law itself.

3. PORT AUTHORITY AND TERMINAL OPERATIONS

One important issue to be considered in port laws is the relationship between a port authority and port services providers, in particular the cargo handling companies operating in the port's territory. Generally, it is undesirable for a public port authority to be directly involved in terminal operations. A port law may explicitly prohibit a port authority from providing cargo handling services. A further step to avoid conflict of interest issues would be to prohibit a port authority from being a shareholder in a terminal operating company located in its port area. Notwithstanding potential conflicts of interest, a port authority with the overall responsibility to develop the port area may sometimes opt to make strategic investments to develop a sector of the port business (see Box 9). There is an increasing trend for port authorities, particularly in the event that there is only one major terminal in a port, to acquire minority shareholding (say 10 percent) in the special purpose vehicle (or operator) constructing a terminal under a concession or BOT agreement. There are commonly two reasons for taking shares:

- The port authority wants to participate in the future profits of the terminal, and this equity participation partially offsets some concession fees.
- By acquiring shares, the port authority has the legal right to get inside information on the accounts and profits of the terminal operator. This is useful when part of the income depends on throughput (concession or TEU [twenty-foot equivalent] fees), which is usually the case in concession agreements (see Box 9).

The situation becomes more complicated when a port accommodates more than one major terminal competing against each other. In order not to compromise its independent position as

Box 9: Violated Neutrality: A Port Director with Two Hats

In 1998, the shareholders of Rotterdam's largest container terminal, ECT (Europe Container Terminals), decided to put the company up for sale. Agreement was reached with Hutchison Port Holdings from Hong Kong to buy the terminal. To protect Dutch interests, the Municipal Port Authority, together with the Dutch ABN-AMRO Bank, retained the majority of the shares, although Hutchison gained operational control of the terminal. The port director of the Rotterdam Municipal Port Authority was nominated as a member of the Supervisory Board of ECT, apparently in a move to exercise as much local influence as possible. This, however, clearly violates the neutrality of the port authority because the port director:

- As a public servant must represent the interests of the entire port.
- Must advise the municipality on matters involving competing container terminals in the port.
- Has the legal task as a board member of ECT to represent and defend the interests of the company and its personnel.
- Has to advise the municipality about public investments, including those regarding the ECT terminal.

The combination of potential conflicting functions may result in loss of confidence by the local port community.

Source: Author.

the landlord, a port authority should either possess shares in all terminals or in none at all.

3.1. Licensing

A port authority might be authorized to exercise licensing and regulatory functions with respect to marine and port services and facilities. Regulation of marine activities is related to the harbormaster's function, as well as to the transport of dangerous goods and protection of the environment (such as rules pertaining to discharge of ship wastes into port waters, tank cleaning, and the use of port reception facilities). The licensing power of the port authority with respect to port services can be extensive

because it usually has the legal power to revoke licenses for violations without administrative appeal.

The law may authorize the issuance of public licenses to operate terminals. Because public licenses require extensive oversight by the port authority and reporting by the licensee, their utility should be balanced against the bureaucratic burden for the port authority and the port licensees. The same goals may be better achieved through concession or leasehold contracts, as these are more flexible for both parties. However, in the event of inclusion of a public license authority in a ports law, rules should be set for transfer, renewal, and cancellation of a license. Unlike for a concession or lease, where breaches are matters of contract and law, license breaches fall under administrative (or even criminal) processes for their resolution.

In this regard, the following reference text may be used:

No person shall provide: (i) any marine service or facility; or (ii) any port service or facility, unless he is authorized to do so by a public license granted by the port authority.

Every public license granted by the authority shall be in such form and for such period and may contain such conditions as the authority may determine.

Usually, a corporatized port authority does not have the power to grant a public license. It can only set conditions for the provision of port services under commercial contracts (such as leases, rent contracts, or concessions) with port service providers.

3.2. Marine Management

Marine management tasks form part of either a national maritime administration or of a public port authority. Marine management, which is essentially a public safety task, should be performed separately from a corporatized or privatized port authority to prevent a conflicting mix of commercial and safety objectives. A ports

law should make that separation of objectives clear. Because of overriding safety concerns, which may run counter to the profit-making objectives inherent under this type of port authority, combining marine management tasks with managing a corporatized or privatized port may not be the best option for managing navigational port safety (see Boxes 10 and 11).

The function and duties of a port authority regarding marine safety and environmental protection are:

- To regulate and control navigation within the limits and the approaches to the port.
- To disseminate nautical and other relevant information to ships and all other involved parties.
- To control maritime transport and loading and discharging of dangerous goods.
- To exercise regulatory functions for the protection of the marine environment.
- To discharge or facilitate the discharge of international obligations of the port authority with respect to marine safety and protection of the environment.
- To promote measures for the safety of persons who work at or visit the port.
- To combat or to provide for combating marine accidents in the port, including fire fighting and ambulance services.
- To secure public order in the port area and to exercise police functions in cooperation with the civilian police authority.
- To play an important role in the provision of security within the framework of the ISPS (International Ship and Port Facilities Security) Code.

Box 10: Maritime Domain: A Potential Impediment to Port Development

A European country enacted a ports law in 1996 that included port land and even inland terminals as the “Maritime Domain.” This concept developed among Mediterranean countries to protect local coastlines from undue commercial exploitation. However, the inclusion of ports has potentially far-reaching negative effects for the commercialization of port operations and may seriously impede the reconstruction of the national ports sector.

Proposals are under consideration to put the port sector on a normal commercial footing, but the current law is still valid. The main issue to be resolved is the current law’s provision that no private property is allowed in the Maritime Domain. Relevant articles from the basic provisions included in the Maritime Domain are listed below.

Article 48: “The Maritime Domain is the public estate of interest to the Republic of ..., is under its special protection, and shall be used and/or exploited under the conditions and in the manner prescribed by law.”

Article 49: “The Maritime Domain includes the internal waters and the territorial sea, its seabed and subsoil, as well as parts of the dry

land that are by their nature intended for public maritime use or are declared as such.

In respect of these Articles, the following shall be considered as the Maritime Domain: the seashore, ports and harbors, breakwaters, embankments, dams, sandbars, rocks, reefs, mouths of rivers flowing into the sea, sea canals, and live and inanimate natural resources (fishes, minerals, etc.) in the sea and in the marine subsoil.”

Article 51: “There is no property or other proprietary rights in the Maritime Domain on any basis.

Anyone is free to use and/or to be benefited by the Maritime Domain according to its nature and purpose in conformity with the provisions of this law.

Special use and/or economic exploitation of a part of the Maritime Domain may be conceded to physical and legal persons (concession) provided that such use is not in contradiction with the interests of the Republic of ...

Special use of the Maritime Domain is any use that is not general use or economic exploitation of the marine domain.”

Source: Author.

Box 11: Marine Management Tasks to be Separated from Corporatized or Privatized Port Tasks

- Control and coordination of vessel movements in the port and the port approaches.
- Monitoring of the pilot organization.
- Dissemination of nautical and operational information to all concerned parties.
- Provision of safe berthing practices.
- Control of handling and storing dangerous cargoes and control of safe loading and discharging practices.
- Keeping law and order (together with the regular police).
- Combating marine accidents and coordination of search and rescue operations.

Source: Author.

If the harbormaster's function forms part of a national maritime administration, its powers and duties are usually regulated in a Maritime Code. Often, however, the harbormaster (port master or port captain in some jurisdictions) is part of a port authority's organization. If so, the ports law or relevant port bylaw should include a section dealing with the specific powers and duties of this function. Generally, the harbormaster may issue general and specific directions to shipping within the framework of its powers. The harbormaster is usually the operational commander responsible for marine safety and for combating the effects of incidents involving ships or terminals. At the same time, the harbormaster is involved in regulating traffic and acts as the main nautical adviser to the port authority's governing board (see Box 12).

3.3. Financial Issues

It is very important to regulate a port authority's financial powers and have them conform with applicable fiscal and public administration laws. A port authority, whether public or private, may do very well in attracting investment, especially from private sources, if it is managed like a commercial business. Many ports, however, are part of an overall state, regional, or municipal structure and subject to the same

Box 12: Harbormaster's Powers and Functions

The statutory powers and duties of the harbormaster are the focus of a port authority's safety function. They can be incorporated in a ports law or be included under a Maritime Code with a cross reference in the ports law to such provisions.

The harbormaster may:

- Ensure compliance with laws and regulations on nautical safety and international conventions aboard a vessel, including fishing vessels and other categories of vessels regardless of flag and affiliation.
- Provide for verification of vessel documents and of necessary qualifications of the crew.
- Regulate, restrict, or prohibit the movements of vessels in the port and in the approaches to the port.
- Register a vessel's arrival in and departure from the port.
- Direct a pilot service and when necessary assign a pilot to a vessel in regions not requiring compulsory pilotage.
- Direct where any vessel may be berthed, moored, or anchored and the method of anchoring (only when dealing with public quays).
- Give directions to a vessel or terminal to ensure safe transport, loading, and discharging of dangerous goods in the port.
- Inspect a vessel within the framework of Port State Control.
- Ensure the keeping of law and order in the port area.
- Coordinate the combating of marine or other incidents.
- In the event of any risk for loss of human life or damage to any property, direct the removal of any vessel from any place in the port area to any other place and the time within which such removal is to occur.
- Declare berths, locations, anchorages, and fairways that may be used by vessels and the areas that are prohibited or restricted areas.

Source: Author.

financial rules and regulations as other parts of the public administration. This is particularly the case for a public service port authority, where the administrative costs of burdensome

procurement procedures can be high, as for example when a cabinet of ministers is the only body authorized to approve the purchase of quay cranes or other high-cost equipment.

Another issue that may hamper efficient port management is a legal provision that requires approval of long-term concession agreements by a council of ministers, or even a parliament, as is the case for instance in Croatia and Yemen. A central government may define a general policy with respect to concession agreements in the port sector, but should not interfere in the detailed negotiations on concession agreements, which should (preferably) be conducted by a port authority. This obviously also applies not only to service ports but also to landlord ports.

Since a port is a functional and economic entity that often operates in a competitive market, clear financial powers for port management should be included in a ports law. These include the powers to:

- Levy charges, rates, and fees.
- Make a reasonable profit.
- Take loans and issue bonds and securities.
- Establish its own procurement rules.
- Keep financial records and to present annual audits conducted by independent accountancy firms.

Examples of legal language used to define certain aspects of financial authority include:

- Ship and port dues and charges and income from real estate, whatsoever their nature, arising in the port domain, are earned and destined for the port authority, with exclusion of all other authorities.
- The tariffs are determined by the port authority. The proceeds of the tariffs shall be sufficient to meet the financial needs of the port, including operational expenses, the maintenance of assets, the payment of interest, allocation for depreciation of assets, and other standard commercial

elements (including shareholders' dividends and a reasonable profit).

- The port authority can take loans and issue bonds and securities.

3.4. Violations

A ports law may explicitly list a number of specific administrative, civil, and criminal offenses and empower the public port authority to assess fines for their violation, subject to administrative or judicial appeal. Such offenses may pertain to:

- Damage to port authority property.
- Unlawful operation of port services.
- Evasion of dues.
- Unsafe operation of vessels.
- Pollution of the marine environment.

3.5. Appealing Port Authority Regulations

In most ports, safety and security regulations are spelled out in port bylaws. Regulations in the bylaws have a public character and bind all operators in the port area. However, a port authority may decide to issue specific regulations in addition to those which can be found in the bylaws. In that case, the operator should have an opportunity to appeal the application of such regulations, especially if their application will result in significant economic harm to the operator.

Provisions of the concession agreements may further provide the operator with the opportunity to request an expert opinion binding both parties. Pending the decision of the experts, the contested regulation of the port authority would be suspended. The general rules for arbitration of disputes contained in the concession agreement may also apply to this section (see Box 13 and Box 14).

3.6. Liability for Damages

The respective liabilities associated with occupancy and use of the site must be clearly presented in leases and concessions. Generally, the

Box 13: Reference Clauses on General Regulations of the Authority

When using the site, the Operator shall observe all regulations given by the Authority and/or any other competent government entity:

- For promoting safety in general.
- To avoid and combat fire in particular.
- To avoid danger, damages, injury, or nuisance.
- To avoid pollution of or damage to the environment and excess taxation of the soil.

Source: Author.

Box 14: Reference Clauses on Specific Regulations of the Authority

Should the Operator object to the regulations given by the authority in respect to the use of the concessioned/leased property as referred to in the previous paragraph, and which are not given by virtue of any power or obligation contained in a government regulation or port bylaw, then the decision of three experts shall be binding in respect of the question whether, or to what extent, those regulations are necessary and reasonable. The provisions on Arbitration mentioned in Section [number] are equally applicable.

The Operator may invoke the decision by experts within six weeks after the day of dispatch of the letter with which the Authority notified the Operator of the regulations referred to above.

Pending the decision of the experts, the implementation of the regulation given by the Authority in respect of the use of the concessioned/leased property shall be suspended without releasing the Operator from the financial or other consequences arising out of the noncompliance with the regulation.

The costs of the aforesaid experts shall be for the account of the party who is held to be in the wrong, while, if the parties are both held to be in the wrong on one or more points, these costs shall be divided by the experts in a fair and reasonable manner.

The experts shall be notified of the provisions of this agreement to the extent that having them is important for the conduct of their work. By accepting his appointment, an expert subjects himself to the aforesaid conditions.

Source: Author.

operator pays for all damage caused to the site by mooring or unmooring of vessels or during cargo handling operations. In a landlord port, the port authority is responsible for maintenance of the quay wall. The responsibility for damage is therefore limited for a mutually agreed period after a vessel arrives at the quay wall (or pier). Damage to the port authority's property by a vessel can usually be recouped from a marine insurance company. The operator may be required to pay for damage even if acting pursuant to orders or instructions of officers (such as pilots) of the port authority (see Box 15).

If a port authority carries out marine services, such as pilotage, towage, and other related activities (for example, vessel traffic [radar] services), liability for the effects of default, negligence, or any other wrongful act should be limited as much as possible. Therefore, the law might contain a clause outlining such a limitation. Examples of such a clause are:

Box 15: Reference Clauses on Damages

The Operator shall be liable to pay for all damages that are detected in the properties of the Port Authority during the time that the berth is used by a vessel or during the three months thereafter. The Operator shall only be released from that obligation if and to the extent that he proves that this damage can be attributed to a cause other than the one referred to.

The Operator shall also be liable to pay for all damages that are detected at a later stage, which may have been caused to any Port Authority property as a result of such use, without it being able to invoke that he did not act contrary to any order and/or instruction given by officers authorized by the Port Authority to do so.

If, in the opinion of the Port Authority, as a result of any use of the site, including the quay wall, damage is caused to the site, the bank protection or port works and/or the sites, or bank protections or port works in the vicinity of the leased property, the Operator shall pay the repair costs of such damage.

Source: Author.

- Notwithstanding the grant of any public license, the port authority shall not be liable in any circumstances for any injury, loss, damage, or cost sustained by any person as a result of any default or omission of any public license or any agent or employee of the licensee.
- The port authority shall not, where, without its actual fault or privity, any loss or destruction is caused by any vessel or to any goods or other thing whatsoever on board a vessel, be liable for damages beyond an aggregate amount [currency of country] for each ton of the vessel's tonnage.

Inclusion of such provisions should be considered in light of the overall goals for port development. For example, limitations of liability may have a chilling effect on some investors, who would have to seek someone other than the port authority to assume liability risks that exceed the limit. Therefore, the port authority should be provided with the power to waive such liabilities or readjust the liability limit.

Another liability to consider is concerns the loss or damage of goods. The concession or lease agreement should hold the operator liable for goods deposited in its custody during port operations. The operator should indemnify the port authority against liability for goods at the terminal (see Box 16).

4. PORT REGULATIONS

4.1. Port Operating Regulations

Port regulations (port bylaws) are usually issued by a public port authority and have a legal basis either in a specific law such as a Maritime Code (as in Azerbaijan), a port law (as in Singapore), or a municipal law (as in Rotterdam). Port bylaws are generally well considered and provide very detailed regulations relating to the conduct of vessels, safety, and order in the port area; the protection of the environment; the use of pilots; documentation of disembarking passengers; loading and discharging of goods; and crisis management.

Box 16: Reference Clauses on Liability

The Operator shall be deemed to be in charge of goods deposited in its custody as from the time that:

- It has taken the goods from the shipper or any person acting on his behalf up to the time the goods are shipped or otherwise disposed of.
- The goods are discharged from ships up to the time of delivery to the consignee or any person acting on his behalf or until final disposal.
- Transshipment containers/goods are received up to the time they are reshipped.

The Operator shall indemnify the Authority in respect to any liability the Authority may incur for loss and/or damage to goods in custody of the Operator.

Source: Author.

Because port regulations are dependent on specific local circumstances, development of generally applicable port regulations is not feasible. Therefore, in this section only a selection of the most important issues is discussed.

4.1.1. Vessel Traffic Management

Vessel traffic management focuses on the safe passage of vessels through the port area. Traffic density in a major port—especially in the case of sea-going and inland vessels using the same port waters—may require an elaborate system of traffic regulation and management. This system comprises four principal elements:

- The vessel with all its sophisticated communication and positioning equipment, such as satellite communication and anti-collision radars.
- The available port facilities, such as vessel traffic systems and modern aids to navigation, often with advanced features such as centralized digital radar displays, collision prediction, and CCTV (closed circuit television) as well as pilot boats, patrol boats for traffic control, tugs, and mooring boats.

- Clear traffic regulations consistent with International Maritime Organisation (IMO) conventions (if applicable) as well as long-established communication procedures.
- Well-motivated and trained pilots, traffic and radar operators, patrol boat crews, tug crews, and other shore personnel.

Provisions regarding these issues are found not only in port regulations, but also in pilotage laws and regulations, vessel traffic regulations, and IMO conventions.

4.1.2. Pilotage

The sea or harbor pilot is the first representative of a port encountered when a sea-going vessel enters port waters. The pilot acts as adviser to the captain during the ship's transit. The efficiency of the pilot service is of major importance both for port safety and efficient traffic management.

4.1.3. Order and Safety in the Port

Since it is not feasible to mention all port regulations on port safety, only those provisions that are of general application are listed here. The main subjects are:

- Berthing requirements.
- Manning of a vessel when at berth.
- Shifting of ships.
- Use of anchors.
- Use of stern- or bow-thrusters when alongside.
- Air pollution from vessels.
- Repairs aboard and alongside ships.
- Transport, handling, and storage of dangerous, hazardous, or harmful goods.
- Reporting and removing substances and objects floating in port waters.
- Fumigation of ships.
- Ships causing serious danger, damage or hindrance (see Box 17).

Generally, the harbormaster (or port captain) is responsible for maintaining good order in the port area, often in cooperation with specialized port police, and, in emergencies, with the regular police, fire brigade, and ambulance services.

4.1.4. Reporting and Communication

Part of reporting and communication with the harbormaster (or port captain) is standard, such as vessel entry and departure. Expected time of arrival at the port is usually reported at least 24 hours prior to arrival and regularly updated. Departure of a ship from berth is usually reported to traffic control three hours before unmooring. There are special procedures for reporting dangerous or noxious substances carried by the ship. Border police and customs require a host of documents. In the event that a country is a member of the Port State Control Agreement, the port authority controls ship documentation to prevent substandard ships from using the port. Rules should be made by ports for captains or agents to inform the harbormaster or Captain's Room in a timely manner about goods loaded or discharged at the terminals, especially with respect to dangerous and noxious cargoes. Reports must also be made to the appropriate authority concerning any accidents or incidents that occurred on the vessel when calling at the port or alongside a berth.

Reports are usually made to the Captain's Room of the port or marine authority responsible for disseminating the relevant information to all parties concerned, such as the terminal of destination, the tug company, the boatmen, customs and immigration, ship chandlers, and others. Information is often entered into a port system serving the entire port community (see Box 18). Data communication between ship and port authorities is increasingly conducted electronically via satellite communication devices (GPS or Internet). Modern ports increasingly accept messages only in digital format.

4.1.5. Dangerous Cargoes: Transport and Handling

Over the last four decades, the IMO has been recognized as the principal forum for all matters

Box 17: Reference Clauses on Port Safety and Environmental Protection**Air Pollution**

It is prohibited to allow smoke, vapors, fumes, dust, or steam to escape from a vessel, which cause or may cause danger, harm, hazard, damage, or hindrance within or outside the port area.

The Port Authority shall publish the names of substances that may cause unacceptable stench or hindrance when being loaded into or discharged in bulk from a vessel. It is prohibited to load or discharge such substances unless the Port Authority has issued a license to do so.

Removing Objects and Substances from the Port Water

When a person by fault or negligence introduces an object into port water, hereby causing danger, hazard, harm, or hindrance within or outside the port area, he shall ensure:

- That the harbormaster is informed without delay.
- That the object or substance is removed from the water immediately, unless this is not practically possible.

The port authority may issue further detailed regulations in order to prevent pollution of port waters.

Execution of Repair Works on Board

It is prohibited to execute or cause to execute works on board a vessel with respect to renovation, repair, or maintenance in the following cases:

- When a ship is berthed in a Petroleum Harbor and the works cause open fire and/or sparks.
- When a ship is carrying dangerous goods or when it concerns a tanker for which no cleaning certificate has been issued.
- If the works are impairing a vessel's readiness to maneuver.

- If the works cause danger, damage, or hindrance.

The above shall not apply when a ship is berthed at a shipyard licensed to carry out such works.

The injunction shall only be imposed when it has become apparent that conditions imposed by the Authority have not been complied with or, in the opinion of the Authority, no effective measures can be taken to prevent or end the situation of danger, serious damage, or serious hindrance to the port area and/or the nearby population.

Fumigation of Vessels

It is prohibited to use or cause to be used gases on board a vessel for the purpose of disinfecting ship and cargo without a license issued by the Port Authority.

A vessel that used gases for disinfecting ship and cargo is prohibited from berthing or being alongside a berth unless a declaration from a licensed expert has been issued stating that the vessel is gas free.

Danger, Harm, Damage, or Hindrance from Vessels

The Port Authority may impose an injunction on the vessel to enter port, to berth, or to remain alongside a berth if the vessel, in the opinion of the Authority, causes or may cause serious danger, harm, damage, or hindrance to the port area and/or the nearby population.

Reporting Data on Security

- International Ship Security Certificate (ISSC) number.
- Date of issue/expiry.
- Name of organization issuing the ISSC.
- Name of ship security officer.
- Ship security threat level.

Source: Author.

affecting the safety of shipping. The transport of dangerous cargoes has been one of IMO's main responsibilities since its founding in 1958. Its rules, requirements, regulations, standards, codes, guidelines, and recommendations have been implemented by port administrations all over the world and are followed and observed by both port authorities and the ports industry. Port regulations should

be consistent with IMO rules as much as possible.

It is estimated that more than 50 percent of packaged goods and bulk cargoes transported by sea can be classified as dangerous, hazardous, or harmful. Some of the substances transported are dangerous or hazardous as a matter of safety and are also harmful to the

Box 18: Reference Clauses on Reporting**Arrival and Departure**

The Master of a vessel shall inform the harbor-master of:

- The ETA of the vessel at the port at least 24 hours before arrival.
- The shifting of the vessel in port at least three hours prior to such event.
- The vessel's departure from port at least three (two, one) hour before unmooring.
- Damage to the vessel, the equipment, machinery, and other items that may impair maneuverability of the vessel and that may endanger the safety of the port area and/or the nearby population, directly upon occurrence of such incident.
- Other data required by the harbor-master in connection with the vessel's presence in the port area.

Notifications shall be made in digital form to the address determined by the Port Authority.

Dangerous Goods

The Port Authority may require reporting data on dangerous cargoes loaded to or discharged from vessels in the port, or from vessels that have not been cleaned from such substances.

The Port Authority may also require when and in what manner these data shall be provided to the Authority.

Reporting Data on Dangerous Goods

The following data shall be provided by the

Master of a vessel:

- Name and call sign of the vessel and the International Maritime Organisation (IMO) identification number, if applicable.
- Nationality of the vessel.
- Length, breadth, and draught of the vessel.
- ETA in port or at the pilot station, as required by the competent authority.
- Expected time of departure (ETD).
- Planned route.
- The correct technical names of dangerous or polluting goods, the UN (United Nations) identification numbers, where applicable the IMO hazard class in accordance with International Maritime Dangerous Goods (IMDG), International Bulk Chemicals (IBC), and International Gas Carriers (IGC) codes and the type of vessel as described in the International Code for the Safe Carriage of Packaged Irradiated Nuclear Fuel (INF Code), and the quantities of the goods and their location on board. In the case such goods are transported in tank or cargo containers; their identification marks and signs.
- Confirmation that a cargo list, manifest, and suitable stowage plan is available on board that accurately lists the dangerous and polluting cargoes carried on board as well as their location.
- The number of crew members on board.

Source: Author.

marine environment, other cargoes are hazardous only when carried in bulk, and some may be considered harmful to only the marine environment. Between 10 percent and 15 percent of the cargoes transported in packaged form, including freight containers, bulk packagings, portable tanks, tank containers, road tankers, trailers, unit loads, and others, fall under the above categories.

Generally, port regulations may require a license for handling specific cargoes. With respect to vessels loading and discharging dangerous cargoes, port regulations usually include detailed provisions. The port authority may prohibit loading, handling, and discharging of dangerous cargoes in harbors where such activities would be especially

dangerous to the public. Often, handling liquid cargoes such as oil, oil products, gasoline, or dangerous chemicals may only take place in designated harbor areas or zones that do not pose a threat to nearby population centers (see Box 19). The entry and presence of dangerous, hazardous, and harmful cargoes in port areas and their attendant handling should be fully controlled to ensure general safety. The passage of ships carrying dangerous cargoes is a critical responsibility of the vessel traffic system. Ships loading or discharging dangerous cargoes are usually regulated by an expert.

Cleaning of ship holds still containing residues from dangerous cargoes may need to be separately regulated and controlled. Disposal of oil and chemical wastes should also be strictly

Box 19: Reference Clauses on Loading and Discharging Dangerous Cargoes

The authority shall make regulations for the transport, loading, handling, or discharging of dangerous, hazardous, and/or harmful goods in the port and the approaches thereto. Such regulations may concern, inter alia:

- Documents to be presented to the harbor-master.
- Berthing requirements, including tug assistance.
- Security and supervision.
- Fire prevention and accident control.
- Activities that may cause danger, hazard, and/or hindrance.
- Loading and discharging of cargoes.
- Incident reporting.

The Authority may prohibit loading, handling, or discharging of dangerous good at wharves or docks where such loading, handling, and discharging appears especially dangerous to the public.

Source: Author.

controlled and carried out through installations owned or controlled by the port authority in accordance with the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) on port reception facilities.

With respect to vessel management, the port authority may regulate the navigation and place of anchoring or mooring of vessels carrying dangerous goods. It also might regulate the mode of utilizing, stowing, and keeping dangerous cargoes on board vessels and the conveyance within the port of any kind of dangerous cargoes with any other kind of goods, articles, or substances.

Finally, a port authority should have full information about the type and amounts of dangerous goods in the port area and about locations where those goods are stored or handled. Detailed regulations should be issued by the port authority or the competent environmental agency with respect to location and segregation of dangerous cargoes on terminals or industrial

sites. In the event of industrial or chemical sites located in the port area, the port authority should also be fully informed about possible dangers and risks with respect to explosions and damage to the environment.

4.1.6. Pollution and Reception Facilities

The goal of MARPOL is to prevent pollution from ships. This has been widely adopted throughout the world. It obligates signatory states to ensure the provision of adequate port reception facilities for waste that can be used without undue delay. National legislation implementing the convention usually places responsibility for ensuring such provision on port authorities. Many ports meet the obligation by allowing suitable, qualified waste management contractors to offer services. In such cases, the authority is responsible for thorough quality control at the facility. Cleaning facilities for oil and oil wastes can often be economically exploited. However, cleaning facilities for chemical wastes generally do not offer by-products that can be extricated and marketed by a waste management contractor.

An important issue to consider is whether the port will merely facilitate the provision of these services directly to ships through licensed, qualified contractors or provide the facilities itself (shore facilities and collection barges, if necessary). In the latter case, the port is responsible for the effective removal of waste materials (see Box 20).

4.1.7. Regulation of Other Port Functions

A variety of other aspects may be regulated by a port authority under a ports law, such as:

- Inquiries with respect to any case where damage has been caused by or to a vessel in port.
- Keeping and placing buoys, beacons, and other navigational aids as well as provision and maintenance of lighthouses.
- The landing of personnel belonging to an armed service.
- Cleaning of basins, works, and premises.

Box 20: Reference Clauses on Waste Management

No person shall provide any waste handling facility-cum-collection service unless he is authorized to do so by a public license granted by the Port Authority (or Environmental Agency).

Every public license granted under this section shall be in such form and for such period and may contain such conditions as the Authority may determine.

A public license for the exploitation of a waste handling facility may include conditions requiring the public licensee:

- To comply fully with the requirements of the MARPOL 1973/78 on adequate port reception facilities, especially with regard to Annex I (Oil), Annex II (Noxious Liquids), Annex III (Packaging), Annex IV (Sewage), and Annex V (Garbage), if and when applicable.
- To prepare itself to deal with any emergency threatening the health of the population and the pollution of the environment.
- To comply with any rules, regulations, procedures, and standards as specified in the license or which are given by a competent authority.
- To allow control and inspection of facilities and administration by any competent authority at all times.

Subject to this Section, the Authority may modify the conditions of the public license granted.

Any public licensee aggrieved by the modification of conditions by the Authority under this subsection may, within 30 days of the receipt of it, appeal to [Court] (ask for arbitration).

The Authority may give directions for or with respect to standards of performance and procedures to be observed to ensure the reliability and the environmental friendliness of the facilities and the waste collection, as well as the prevention of undue delay to vessels.

Any person who fails to comply with any direction given under this section shall be guilty of an offense.

It shall be the duty of the public licensee to provide environmentally acceptable, reliable, efficient, and economical services to the shipping community in accordance with the provisions of public license granted to it and the directions of the Authority.

- The use and manning of harbor craft (sometimes requires fire-fighting capabilities).
- Provision and maintenance of pontoons.
- Manning and use of tugs and boats.
- Special police powers for patrol boat personnel (may also be included in the harbor master's function).
- Disaster control and emergency communication procedures.
- Fire-fighting procedures and operations.
- Prohibiting the embarkation and disembarkation of persons except at such places as may be authorized by the port authority.

5. PORT COMPETITION MODALITIES

There are three categories of port-related competition. Interport competition arises when two ports in the same or in different countries compete for the same cargo. The scale of interport competition often depends on the size of the hinterland of the concerned ports. For example, Rotterdam competes with Antwerp, Hamburg, and Bremen for cargoes destined for Central Europe. Transshipment container trade competition often concerns an entire region; for example, in the South Asian region, the port of Colombo is competing with Singapore, Tanjung Pelepas, Dubai, Salalah, Aden, and possibly in the future with Vallarpadam. Intraport competition refers to a situation where two or more terminal operators within the same port area compete for the same type of cargoes.

Intraterminal competition refers to two or more (stevedoring) companies competing within the same terminal. This situation is rare and usually only exists within small ports operating under the service port model with independent stevedores.

In general, intraport competition is favored by both government and port users, but is not always feasible. It depends on the volume of the cargo, which may not be sufficient to allow two or more operators to run a profitable and

effective business. Establishing competition in the port sector requires four steps:

1. Assessment of sector unbundling, especially in the case of a public service port. This relates to the financial and economic feasibility of creating more than one terminal handling the same commodity.
2. Implementation of the new port management structure, if and when required.
3. Conclusion of concession or lease agreements that include tariff regulation mechanisms, if required by the absence of intraport competition.
4. Introduction of regulatory oversight by the government (port competition act), but only with respect to those tariffs that relate to a monopolistic market situation.

When intraport competition is muted or absent, the terminal operators (whether public or private) have an incentive to use their monopolistic market position to charge high tariffs (particularly for captive cargoes), which may justify regulation. The need for such regulation may lead to the creation of an independent port competition regulator. This regulatory function is usually instituted by law.

The main objective of the regulator is to ensure fair competition among competing operators in the port; control monopolies (including public ones) and mergers; and prevent anticompetitive practices. Generally, a port sector regulator has legal powers to interfere in anticompetitive practices such as:

- Use of a dominant position to prevent or lessen competition.
- Cross-subsidization from monopoly services to contestable services, where it threatens fair competition.
- Price fixing among competitors.
- When a firm or a person providing port services pursues a course that of itself has or is intended to have the effect of restricting, distorting, or preventing competition.

- Monopoly situations, which are most likely to occur in medium size or smaller ports. In many ports, only one container or oil terminal exists. Generally, when a monopoly or merger situation is not in conflict with the public interest, it may be permitted.

A port competition regulator should only be established in the event of serious threats to competitive behavior within the port. It should preferably have the character of an arbitrator rather than a court of law, and be accepted by the port community as being independent. In the case that boundaries between port authorities and terminal operators are vague or nonexistent (when a port authority not only runs its own container terminal but also owns shares in a competing facility, as is the case in Sri Lanka), a regulator might be a solution for guaranteeing a level playing field for all port operators. A regulator, however, should not jeopardize the legal powers of port authorities to operate freely in the market or the ability of a terminal operator to negotiate tariffs with its clients.

Box 21 discusses the consequences of over competition in ports with insufficient volume, highlighting the case of the Port of Buenos Aires.

In a landlord port model, the public port authority itself is the first to exercise control over excessive pricing by marine or port services providers. A well-devised concession agreement still constitutes the best means to prevent an operator from misusing monopoly power.

In Module 6, a detailed analysis is provided concerning port regulation, including competition regulation. The next section emphasizes the legislative aspects of such regulation.

5.1 Legal Structure of Port Competition Regulation

The introduction of a port competition act is only deemed necessary in the event that inter- and intraport competition is absent or not sufficiently developed to prevent monopolistic behavior, either by a port authority or a port operator (see Box 22). Reasons for introducing regulation in this respect are:

Box 21: The Buenos Aires Case

In 1993, bid documents were issued by the Argentine government offering concessions for six terminals in Buenos Aires (Puerto Nuevo). The bid was for six conventional finger piers of which two piers (numbers 1 and 2) could be bid as one. This resulted in five operating concessionaires of which one had to close down within 13 months after starting operations. From the remaining four operators, one specialized in general cargo and bulk, and three in container handling. The story of Buenos Aires was told in September 1998 by Trevor H. Bryans of P&O Ports during a World Port Privatization Conference in London.

"Unbeknown to the Puerto Nuevo bidders at the time of submitting the bid, another concession was to be granted for container operations. A fourth container terminal, called Exolgan, was developed at Dock Sud, only 8 km from Puerto Nuevo. This area falls under the Buenos Aires State Province jurisdiction, and not under the Federal government. The position then was that there were four container terminals in the Port of Buenos Aires, to handle 500,000 containers, further reducing the size of the cake, and casting considerable doubt on the achievability of the commitments made in winning the concessions.

The issue of competition, and how it is addressed in government policy, is an issue, which is fundamental to the success of privatization. Competition becomes an obsession with port authorities planning for privatization. Ports with insufficient volume to support one efficient operator, look to bid two or more concessions.

The Port of Buenos Aires is a perfect example of this obsession with competition, which has led to overcapitalization, five concessions have been let, and there is only sufficient volume for two, or at the most, three efficient container terminals.

As mentioned previously, the operator who won the concession of terminal 6 has gone bankrupt, mainly as a consequence of lowering tariffs to subeconomic rates to retain business, and since the early part of 1995 a savage price war developed, which has seen average-per-box revenues plummet from \$400 preprivatization to less than \$200 today, and they are still falling.

The current rate-of-return to terminal operators in Buenos Aires is beneath average long-term cost of the provision of the services by segmenting the market into four operators. Each terminal incurs considerably higher costs than the combined average cost of one large operator. The clients have been denied access to services provided in the most effective manner possible.

Moreover, the three terminals operating in Puerto Nuevo suffer unfair competition by the operator Exolgan at Dock Sud, operating at the Provincial Administration. It is estimated that the commercial advantage to Exolgan is approximately \$40 per box. The commercial advantage to Exolgan arises from the following:

- The 'Tasas a la Carga,' payable by importers/exporters to the terminal, which is then passed on to the Federal government, does not apply at Exolgan. The 'Tasas a la Carga' is \$3 per ton on import cargo, and \$1 on export cargo. It is collected by Exolgan, but not passed onto the Province.
- Under the terms of the bid in Puerto Nuevo, the Concessionaires had to absorb a proportion of the waterfront and AGP labor. In the case of TRP, this amounted to almost 900 people, although the terminal only required 430. Reducing this labor to the required number cost in excess of \$10M. Exolgan was not required to absorb any of the redundant or surplus labor, although that labor was originally employed at Dock Sud.
- Volume commitments were made by the Puerto Nuevo terminals as part of the bid. Shortfalls in these volume commitments must be paid for by the operators. No similar commitments were required from the operator at Exolgan.
- The rental fee payable to the Province by Exolgan is payable for the quay area only; the remainder of the land is free-hold.
- Stringent performance guarantees and bonds had to be made by the operators in Puerto Nuevo, and stipulated insurance costs covered. This was not the case at Exolgan."

Source: Author.

- A port authority not only functions as a landlord, but also provides stevedoring services or operates a terminal. The latter is the case in Sri Lanka, where the Sri Lanka

Ports Authority owns and operates the Jaya Container Terminal, which competes with the privately operated South Asia Gateway Terminals (SAGT) managed by

Box 22: Sample Port Competition Act

Hereinafter, the main provisions of a Port Competition Act are mentioned.

The main recital of the Act may state the following:

WHEREAS it has been deemed appropriate to promote and oversee competition in the ports sector, ensure the equity of access to the ports of [country], and to create an atmosphere of confidence for port users and investors in commercial marine and port services and facilities.

NOW THEREFORE, be it enacted by the Parliament of the [country] as follows:

Important are the functions of the port regulator and the powers to interfere in the market. An example of the relevant provisions are:

- (1) The functions of the port regulator shall be to act as the economic regulator and competition authority for the ports sector in [country]:
 - (a) Upon complaint of any port user, to investigate and make orders in relation to complaints concerning alleged anti-competitive practices or abuse of a dominant position.
 - (b) Upon complaint of any port user in relation to tariffs, to investigate whether those tariffs amount to or evidence an anti-competitive practice or an abuse of a dominant position and to make an order thereon.
 - (c) Upon notification to the port regulator in terms of [subsection (2)] hereof prior to any merger of:
 - (i) A marine service provider and a port service provider.
 - (ii) A marine service provider with another marine service provider.
 - (iii) A port service provider with another port service provider.
 - (iv) Upon complaint of any port user prior to or upon such a merger, to decide whether the merger situation is incompatible with the promotion of competition and to make an order thereon.
- (2) On the application of the ports authority under section [number], to review the draft of the concession agreement in terms of the said section and advise the port authority on whether any provisions thereof may be incompatible with the promotion of competition, may amount to an anti-competitive practice, or may result in an abuse of a dominant position.
- (e) In response to a complaint of any port user, to investigate whether the occurrence of cross-subsidization exists from dominant services to contestable services, and make an order thereon.

- (2) The port regulator shall prescribe the instances in which a merger notification is required to be given to it under paragraph (c).

The provisions above are an example of light regulation, only upon complaint of the port authority or the users of the port facility. However, the regulator has the option to make an order to modify the tariffs when it decides that a certain situation violates fair competition in the concerned port or port sector.

Source: Author.

P&O Ports. In this case, a port competition act was deemed necessary to prevent possible misuse by the port authority of its dominant position because it was also responsible for pilotage and towage services and creating an atmosphere of confidence for private port users and investors.

- There is only one terminal operator handling a specific commodity (often containers). In Yemen, there is only one large container terminal handling the entire national container traffic. Therefore, the

government introduced competition regulation provisions in the concession agreement with the terminal operator, although it is only applicable to domestic containers. No restrictions were put in place with respect to transshipment activities.

As indicated above, port competition regulation may either be introduced by law or be part of a concession agreement with a port operator. There is also the possibility of a merger between two port operators, resulting in the creation of a monopoly in the concerned port. In such a

case competition regulation may be necessary either in terms of tariff regulation or in prohibiting the merger for being incompatible with fair competition.

6. FULL CONCESSION AGREEMENTS

More elaborately discussed in Module 3, concession agreements are a relatively new development in ports. Business opinions differ about the legal nature of a concession agreement—as well as its configuration. Some concession agreements have more in common with a privatization model, while others resemble a leasehold contract. Because comprehensive privatization constitutes an unrestricted and irrevocable transfer of port land from the public to the private sector, a concession agreement, with or without BOT types of arrangements, cannot be conceived as being comprehensive port privatization, but only partial port privatization. During the last decades, application of concession agreements have gradually become the preferred method to develop public-private partnerships and are most successfully applied within the landlord port structure.

Concession agreements were originally developed for service ports. Landlord ports usually did not need concession agreements, but used leasehold agreements instead. Both types of agreements have much in common and some consider a leasehold contract to be a variant of a concession. To avoid misunderstanding, the term “full concession agreement” will be used to describe a concession in its broadest form; that is, a series of contracts that define the relationship between the government and the private sector regarding the right to exploit port land and facilities as well as the obligation to construct port infrastructure and provide superstructure.

In some aspects, a leasehold might be considered a long-term rent contract. But contrary to a rent contract, a leasehold conveys a possessory interest. Therefore, a leasehold can be transferred or sold to another private party under the conditions stipulated by the port authority.

This is a very important feature for advancing the business plan of a private investor in a port terminal.

6.1. Full Concession, Leasehold, and Land Rent

What differentiates a concession agreement from a leasehold? When would one instrument be preferable over another? Box 23 summarizes the formal differences and similarities.

The main reason to apply a full concession contract is fiscal. In the 1980s, many ports (especially service ports) were in dire financial straits: government-controlled, overmanned, badly maintained, without market orientation, and often not able to provide even essential port services. This situation did not occur solely in developing countries, but also in many developed countries. In developing countries, however, the financial resources necessary to modernize port facilities and to provide for redundancy payments for excess personnel were usually lacking. Concession agreements provided a timely solution: private investors provided the money to modernize port facilities and often were willing to take over some port personnel liabilities. This freed up government resources for use in other parts of the economy. For all their advantages, concession agreements do have a price, most particularly the surrender by the government of full and complete control over port development.

6.2. Full Concession and BOT Schemes

If the concessionaire obtains the right to construct significant parts of the operational facilities as well as the operational port infrastructure (mainly quays and land reclamation works), a concession could be combined with a BOT arrangement. In the case of legislation designating part of the infrastructure to be of a public character, the concession may be considered a public license. However, the part of the concession constituting a public license is generally not negotiable. The government authority granting the license

Box 23: Full Concession, Lease, and Rent Contracts—Landlord Port

Characteristics	Full concession	Leasehold	Land rent
Terms	25–35 years	10–25 years	10 years
License	Maybe, depends on legislation	Maybe, depends on legislation	Maybe, depends on legislation
Government guarantees (loan, taxes, exchange rate, and competition conditions)	Yes	No	No
Obligation to assume port personnel liability	Often, depends on local situation	No	No
Port assets may be pledged as security	Yes	Maybe, depends on legislation	No
Performance monitoring by port authority	Yes	Yes or no depending on the contract	No
Traffic guarantee by concessionaire, lessee, or renter	Yes, depends on contract	Usually not	No
Private investment in port infrastructure	Yes	No	No
Private investment in port superstructure and equipment	Yes	Yes	Yes
Tariff control by government or port authority	Depends on situation	No	No
Terminal management	Concessionaire or his chosen operator	Lessee	Renter
Payments	Fixed and variable	Lump-sum (fixed) or shared revenue	Fixed
Legal character of private party	Joint venture, often including shipping line	Mainly limited liability company	Limited liability company
Responsibility for environmental conditions	Yes	Depends on legislation	Usually not
Business plan required	Yes	Depends on contract conditions	No
Reversion of user rights after contract period	Yes	Yes	Yes
Compensation for newly built facilities	Depends on contract	To be transferred to new lessee or to be removed	Not applicable

Source: Author.

usually reserves the right to unilaterally modify license conditions.

The most important BOT arrangements combine many variations of long-term leasing with preagreed investment commitments. In port reform, the most commonly used models are BOT, BOOT (build-own-operate-transfer), BTO (build-transfer-operate), and WBOT (wrap-around BOT). These variations are described in more detail below, and also later in this module in “BOTS and Construction.”

BOT. Legal title to the newly constructed port infrastructure, and sometimes other assets, remains with the government or port authority until the end of the concession period. The concessionaire concludes a long-term leasehold agreement, which conveys rights similar to holding title over the land. This agreement is usually attached as an annex to the concession.

BOOT. It is also possible that legal title for the land is acquired directly by the concessionaire. Under a BOOT model, the parties agree to have title over all assets that are passed to the government at the end of the concession. For many large terminal operators, the BOOT model is a preferred option.

BTO. This arrangement addresses instances in which legislation forbids ownership by private parties for what is considered public infrastructure or part of the maritime domain. Ownership may be directly transferred to the government after construction (for example, Costa Rica, and Croatia). The investor in the terminal facility will construct the terminal on privately owned land and subsequently transfers title to the government or port authority. Generally, this form of public-private partnership is considered more complicated than the more common BOT scheme, especially with respect to liability and increased government involvement. Under the BTO model, ownership of port facilities becomes an issue for lenders and investors, particularly when fixed assets are required as collateral for financing. In such cases, lenders may require some form of government guarantee regarding adherence to the terms of the concession agreement.

WBOT. Finally, the WBOT concept packages a BOT with a privatization of the public infrastructure. Under a WBOT structure, existing government-owned port facilities are expanded by the private sector, which holds title only to the additional infrastructure. Under this model, a private operating company would then:

- Operate the entire port facility under a project development agreement (PDA).
- Manage the government-owned port facility under a management contract.
- Expand the facility under a concession or BOT contract.
- Have both the management contract and concession or BOT contract wrap around the PDA.

6.3. Full Concession Agreement Structure

While the principal framework for the relationship between the port authority and the concessionaire is specified in the main concession agreement, there are a number of other documents that form part of the concession. The concession agreement and related documents can be used in a number of circumstances, including when:

- A private operator concludes a concession agreement for an existing public terminal.
- A private operator concludes a concession agreement with a BOT arrangement for an existing terminal that must undergo large-scale reconstruction and be thoroughly reequipped.
- A private operator constructs an entirely new terminal under a concession agreement with a BOT arrangement (greenfield project).

Box 24 presents a short list of the important topics usually treated in a concession agreement and related documents, whereas Annex I presents a comprehensive potential list of concession and BOT agreement provisions.

Box 24: Main Schedules to a Concession or BOT Agreement

- a. Definitions
 - Definitions
 - Interpretation
- b. Conditions precedent
 - To be fulfilled by the operator
 - To be fulfilled by the government
- c. Authorized maps of development area
 - Current terminal
 - Extension works
- d. List of current terminal personnel employed
- e. Identified permits
- f. Functional requirements of the extension works
- g. Design solution
- h. Construction program
- i. Milestone achievement dates and milestone sunset dates
- j. Commissioning tests
- k. Minimum insurance covers
 - Precommissioning insurance
 - Postcommissioning insurance
- l. Maintenance policy
- m. Transfer arrangements
- n. Hand-back
 - Hand-back requirements
 - Expiry date inspection
 - Form of hand-back certificate
- o. Termination procedures
- p. Throughput
 - Annual throughputs
 - Traffic and throughput information
- r. Initial capitalization

Source: Author.

6.3.1. Preconcession Documents

Often, either pursuant to the terms of an award, or for purposes of securing financing commitments, the parties execute various preconcession documents that either outline the fundamental terms of the concession or become incorporated into the concession itself. Among these documents are:

- *Letter of intent (LOI)*: A preconcession agreement stating the concessionaire or sponsor's intention to design, construct, or renovate a new or existing port facility, and the port authority's willingness to establish terms for a privately operated facility under a concession agreement and to cooperate with the concessionaire or sponsor in complying with certain local requirements (for example, permits, registrations, and qualifications to do business). The LOI is prepared in accordance with draft functional specifications that were originally submitted as part of the bid documentation.
- *Detailed project report (DPR)*: A document submitted to the port authority as an outline of the functional design or general technical design and time schedules (milestones) for the various phases of the construction. Once approved by the authority, the DPR would be incorporated in the concession agreement, at which point the milestones become binding.
- *Joint development agreement (JDA)*: An agreement among members of the sponsor group that allocates project responsibilities (for example, shareholding, financing, construction, or tax advantages). This agreement might include a port authority or even a ministry.
- *Technical operations agreement*: An agreement that specifies joint use of and responsibilities for technical facilities, such as shore cranes or operational infrastructure.

6.3.2. Definitions

Every concession agreement includes a list of definitions to delineate precisely both the subject matter and the concepts used throughout the agreement. These definitions will vary from country to country and legal system to legal system. Outlined below are examples of the most commonly used definitions. The capitalization of a word within agreements often indicates the word is specifically defined within the definitions section of the agreement.

Agreement: The concession agreement, entered into between the Port Authority of [port or country] and the Operator, of which this schedule is a part, including all the schedules thereto, and as it may be amended, varied, or modified from time to time.

Applicable permits: Any and all permissions, clearances, licenses, authorizations, consents, no-objections, and approvals of or from any governmental authority of whatsoever nature required from time to time in connection with the ownership, development, financing, construction, operation, and management of the terminal at the Port of [name], concessioned to the Concessionaire, and for undertaking, performing, or discharging the obligations contemplated by this Agreement or the Port Services Agreement and the Site Lease Agreement, as set out in Schedule [number] hereto.

Approved DPR: The DPR approved by the Port Authority for the development of the various phases of the site, the approved form of which shall be signed for identification by the parties to this Agreement and shall include any amendments to the DPR approved by the Port Authority in accordance with this Agreement.

Bank: Every shore structure (excluding a quay wall), measured in each case from the crest line of the ground to the bed line, and including related artificial structures.

Basic port infrastructure: Immovable assets destined for general use of the port area, such as:

- Maritime access channels.
- Port entrance.
- Port basin(s).
- Protective works, including breakwaters and shore protection.
- Accesses to the port for inland transport (roads, rail, inland waterways, and tunnels, and so forth)

Basic structures: All immovable property, with the exception of such property that is subject to the right to lease. Basic structures include all

pieces of stone, foundation remains, poles, pipes, cables, scaffolding, pavements, demarcations, and structures on or at the grounds that were founded, placed, or built by the port authority or by the former users before the commencement of the right of lease as part of a concession.

Building contract: The contract or contracts entered, or to be entered, into between the Builder and the Operator for the construction of the works with respect to the [Name] Container Terminal or (port) facility, in a form that contains provisions approved by the Port Authority concerning its assignment to the Port Authority or enabling the exercise of other step-in rights of the Port Authority.

Business plan: In respect of a financial year, a plan for the business of the Operator consisting of:

- (a) The strategic and marketing objectives of the Operator for that financial year.
- (b) The operating and financial targets of the Operator including monthly income, balance sheet, and cash-flow statement.
- (c) Business and financial forecasts of the Operator for the 4 (four) financial years following that financial year.

Change in law: The occurrence of any of the following subsequent to the date of signing this Agreement:

- (a) The modification, amendment, variation, alteration, or repeal of any existing Law or Decree of any government authority.
- (b) The enactment of any new Law or the imposition or issuance of any new Decree by any governmental authority.
- (c) The commencement of any Law or Directive or Decree that has not yet entered into effect at the date of signing this Agreement.
- (d) Changes in the interpretation, application, or enforcement of any law or judgment by any court within the [country] having jurisdiction over the government.

(e) Any Applicable Permit previously granted, ceasing to remain in full force and effect for reasons other than breach or violation by or the negligence of the Operator, or if granted for a limited period, being renewed on terms different from those previously stipulated.

Conditions precedent: Shall mean the obligations to be fulfilled by the Parties prior to the Effective Date in accordance with Article [number] read with Schedule [number].

Credit agreements: The loan agreement(s) entered into, or to be entered into, between the Lenders and the Operator to provide finance to the Operator in order that the Operator may fulfill its obligations under this Agreement.

Cargo handling services: Cargo terminal management and operations including cargo handling services for stevedoring; landing; transporting; cargo consolidation; warehousing of general, liquid, or dry bulk cargoes.

Concession area: The port areas within the port of [name], known as [name], as more fully described and delineated in Annex [number] to this Agreement.

Concession fee: The monthly price per meter for the use of leased property and, in addition to such amount, a Throughput Royalty to be paid in recognition of the port authority's ownership (user) rights as specified in Section [number].

Container services: Container terminal management and operations, including container handling services for stevedoring, landing, transporting, and warehousing; stuffing and stripping; consolidation of containerized cargoes.

Debt: Any indebtedness of the Operator for the purposes of financing the investment in and enhancement, development, design, construction, commissioning, and operation of the Terminals and the Extension Works, or any other costs or expenses in relation to the obligations of the Operator under this Agreement, related thereto.

Depreciated replacement value: Shall have the meaning assigned to it in accordance with the

[reference to appropriate document, accounting practice, or method of depreciation].

Effective date: The date of fulfillment of all the Conditions Precedent.

Financial closing: The fulfillment of all conditions precedent to the initial availability of funds under the Financing Documents and receipt of commitments for the equity required for (Phase 1 of) the project and immediate access to funds.

Financing documents: All loan agreements, notes indentures, security agreements, letters of credit, share subscription agreements, subordinated debt agreements, and other documents relating to the financing of the Project, as the same may be amended, supplemented, or modified from time to time.

Force majeure: An event or circumstance or a combination of events or circumstances beyond the reasonable control of either party, which materially and adversely affects the performance by that party of its obligations under this Agreement and that cannot reasonably be foreseen or prevented (such as civil disturbance, armed conflict or act of foreign enemy, wars, blockades, insurrections, uprisings, sabotage, embargo, revolution or riot, action or inaction of public officials, expropriation, nationalization or confiscation of facilities, earthquakes, mudslides, lightning, typhoon, fires, storms, floods, epidemics or plagues, acts of God, and other natural disasters).

Good industry practice: As applicable to the Operator, its contractors, subcontractors, operators, subconcessionaires, sublessees, and all other third-party agents of the Operator, practices, methods, techniques, and standards, as changed from time to time, that are generally accepted for use in international port construction, development, management, operations, and maintenance, taking into account conditions in [country].

Grounds: The grounds given out in lease to the Operator under this Agreement.

Hand-over: The process of providing peaceful and vacant possession of and access to the Concession Area and all cargo handling equipment as well as infrastructure and superstructure by the Ports Authority for the conduct of the business of the Terminal as contemplated by this Agreement, together with such access rights as are described in the Site Lease Agreement.

Joint development agreement: The Agreement dated [date] between the Sponsors and, among other things, allocating project responsibilities between the Sponsors as per Annex [number].

Law: Any applicable [country] law, statute, proclamation, bylaw, decree, directive, decision, regulation, rule, order, notice, judicial order, judgment, or delegated or subordinated legislation, including directions or guidance, issued pursuant to any legislation.

Lead sponsor: [Name] having a major Equity Share as per the Joint Development Agreement.

Lenders: Local or foreign financial institution(s), corporations, companies, or banks providing secured and unsecured credit facilities to the Operator, including lease and hire or purchase facilities to the Operator pursuant to the Financing Documents.

Lenders direct agreement: The agreement between the Lenders (represented by [Name] Bank acting as Security Agent), the Concessionaire, the government and/or Port Authority, including the rights of the Lenders under the Concession Agreement, the Port Services Agreement, the Management Agreement, and the Site Lease Agreement, assigned to the Security Agent under the Assignment of Project Documents and charged under [the Commercial Mortgage] as well as the procedures and obligations of the parties in the event that the concession is terminated prior to expiry.

Material adverse effect: Circumstances that adversely affect: (a) the ability of the Operator to observe and perform in a timely manner its obligations under this Agreement; (b) the ability of the Operator to avail the benefits of the

Concession Agreement in accordance with the terms of this Agreement; (c) as a result of which the Operator is unable to or is prevented from carrying on the Operations of the Terminal; or (d) its exclusive right to build, own, operate, and transfer the Extension Works at the Concession Area is diminished or impaired.

Operational port infrastructure: Infrastructure essential to port operations, to include any or all of the following items:

- Inner port channels including turning and port basins.
- Revetments and slopes.
- Roads, tunnels, bridges, and locks in the port area.
- Quay walls, docks, jetties, and finger piers.
- Aids to navigation, buoys, and beacons.
- Hydro and meteorological systems.
- Specific mooring buoys.
- Vessel traffic management system (VTMS).
- Port land (excluding superstructure, terminal road system, and paving).
- Access roads to general road infrastructure, rail connection to general rail infrastructure, and marshalling yards.

Port equipment: Equipment (nonfixed assets) essential to the operation of the port, to include any or all of the following items:

- Tugs.
- Line handling vessels.
- Specialized vessels for depth survey and fire fighting.
- Dredging vessels and equipment.
- Ship and shore handling equipment (such as top cranes, gantry cranes, and grain elevators).
- Cargo handling equipment (apron and terminal), such as transtainers, top lifts, and trailers.

Port services agreement: The agreement entered, or to be entered, into between the Port Authority and the Operator for the provision of marine services by the Port Authority in relation to the Terminals to be operated by the Operator pursuant to this Agreement in agreed terms.

Project: The development, financing, design, construction, operation, and maintenance of the site in accordance to the provisions of services to the users.

Regulatory authority: Any authority (referred to in Article [number]) constituted by law in [country].

Site: The wharves, piers or quays, buildings, and other infrastructure and superstructure leased or given in concession to the Operator under this Agreement.

Sponsors: The Consortium selected (through a process of competitive bidding in [month], [year]), led by the Lead Sponsor.

Terminal: The terminal facility proposed to be developed in accordance with the terms of this Concession Agreement by the Operator.

Transport infrastructure linkages: The road, rail, or water infrastructure linkages agreed to in the Approved DPR, identified as material transport infrastructure required for the development or operations of the [terminal, port].

Quay wall: A vertical or almost vertical shore structure, including related support structures.

This list may be augmented with other items or the definitions may be expanded depending on the specific objectives of the concession and considerations of the national concession law.

6.3.3. Conditions Precedent Sample

Below are two sample conditions precedent, one applicable to the operator, and one applicable to a port authority.

6.3.3.1. Part 1—Conditions Precedent to be Fulfilled by the Operator. Delivery by the Operator to the Port Authority, in form and substance satisfactory to the government (acting reasonably), of the following documents:

1. A duly certified copy of the Operator's Certificate of Incorporation (and of any certificate of incorporation on change of name or certification on registration as a public company).
2. A certified copy of the Memorandum and Articles of Association of the Operator, in the form approved by all shareholders of the Operator and by the Lenders.
3. A duly certified copy of the Certificate of Incorporation (and of any certificate of incorporation on change of name or certification on registration as a public company) of the company holding the majority of the shares of the Operator.
4. A certified copy of the Memorandum and Articles of Association of the company holding the majority of the shares of the Operator, in the form approved by all shareholders of the Operator and by the Lenders (if any).
5. Certified minutes of a Meeting of the Board of Directors of the Operator evidencing:
 - (a) Consideration by the directors of:
 - i. A draft of this Agreement and the other Project Documents.
 - ii. The Operator's rights and obligations under the this Agreement and the other subsidiary agreements.
 - iii. The legal capacity of the Operator to undertake the Project and enter into and perform the Project Documents and the authority of the directors to exercise the powers of the Operator to do the same.
 - (b) A valid resolution of the directors approving the execution, delivery, and performance by the Operator of each of the Project Documents, except the Building Contract, which will be concluded with a competent Builder subject to Article [number] not later than [number] months from the Effective Date or such later date as agreed on between the parties.

6. Documentary evidence of the execution and delivery of each of the Project Documents and of the satisfaction or waiver of any conditions precedent under each of the Project Documents except the Building Contract.
 7. Documentary evidence of the receipt by the Operator of the Applicable Permits (and any applicable other Consents, if any) as listed in Schedule [number].
 8. Documentary evidence that the Operator has taken out the insurances required by Article [Number] of the Agreement (other than those insurance relating to construction that cannot be procured until after the Effective Date).
 9. A certified document made out by the Operator stating that all Movable Assets and Facilities, associated spare parts as well as warrantees referred to in Article [Number] have been accepted by the Operator and the transfer value of \$ [number] million has been paid to the Port Authority, and that the Operator holds harmless and indemnifies the Port Authority and keeps the Port Authority so indemnified against each and every liability that the Port Authority may incur to any person whatsoever and against any claims, demands, proceedings, damages, costs, losses, obligations, liabilities, and or expenses sustained, incurred, or payable by the Port Authority with respect to the Movable Assets and Facilities and associated spare parts.
 10. Confirmation of the Operator that it has satisfied itself as to the nature and extent of the conditions of or affecting the Concession Area (including climatic, hydrological, hydrogeological, ecological, environmental, geotechnical, and seismic conditions), but only in respect of the existing Terminals.
 11. Execution of the Financing Documents by all parties to such documents.
- 6.3.3.2. Part 2—Conditions Precedent to be Fulfilled by the Port Authority. Delivery by the Port Authority to the Operator, in form and substance satisfactory to the Operator (acting reasonably), of the following documents:
1. The execution by or on behalf of the Port Authority of the Port Services Agreement and the Site Lease, in the form agreed by the Operator, respectively, the Sponsor and the Port Authority prior to or on the date hereof.
 2. The receipt by the Operator of a legal opinion from counsel for the Port Authority in a form and substance reasonably satisfactory to the Operator with respect to the due authority, valid existence, execution, delivery, and performance of this Agreement, the Port Services Agreement, and the Site Lease, and confirming that all necessary government approvals, including the approval to enable the Port Authority to enter into such agreements, have been secured.
 3. Documentary evidence that all Applicable Permits currently in force at the [name] Terminal have been assigned by the Port Authority to the Operator for the remaining duration of the term of such Permits.
 4. Documentary evidence of the receipt by the Authority of all other Applicable Permits required to be obtained by it (and as listed in Schedule [number]) under law.
 5. A Certificate from the [independent expert], as Test Certifier, stating that the Commissioning Tests have been conducted in a proper manner and to the satisfaction of the [independent expert].
 6. The issuance of the Commissioning Certificate from the [independent expert], as Test Certifier, in accordance with Schedule [number] hereof.
 7. A Certificate from the Port Authority that the ownership of the Movable Assets and Facilities at the Terminals has been transferred on the Actual Hand-Over Date, by the government to the Operator

pursuant to the completion of the Commissioning Tests to the satisfaction of the Operator and/or the Sponsor.

8. Documentary evidence of the receipt by the Operator of all new Applicable Permits required to be obtained by it (and as listed at Schedule [number] under law) prior to the Actual Hand-Over Date.

6.3.4. Term of the Concession Agreement

The term of the agreement is a strategic issue. It mainly depends on the respective amounts of investment the port authority and the concessionaire have made or will make. In a landlord port, standard lease contracts that involve limited investment on behalf of the concessionaire are typically 10–15 years. BOT-type agreements are usually concluded for a period of 25–35 years, with options to renew. Investments of lessors in superstructure and equipment often exceed those of a port authority by a large margin; whether this is the case or not, both parties have an interest in a mutually beneficial long-term relationship. This is especially true when concluding a full concession agreement with a BOT arrangement. Shorter term arrangements (10 years or less) are suitable for tool ports or management contracts, but in general do not provide much security or stability for the port authority and offer no major incentives to the concessionaire to improve performance or to introduce innovative operations.

Concession documents must also indicate precisely when the concession period actually starts, which can be a complicated issue. Some of the provisions come into force on signature, such as warranties, confidentiality provisions, and clauses relating to applicable law and dispute resolution. In the event of the transfer of assets or construction of infrastructure under a BOT arrangement, relevant conditions come into force upon satisfaction of waiver of pre-existing conditions. Conditions precedent deal largely with delivery and proper execution of certain documents required to give effect to or support obligations under the concession agreement.

Box 25: Reference Clause on Term of Concession

This Concession Agreement shall commence on the [day] of [month] of the year Two Thousand and [year] and shall end, in whole or in part, on [day] of [month] of the year Two Thousand and [year].

The Operator has the option to extend the duration of this Concession Agreement by a period of maximum [number] years, immediately following the present period, taking into consideration the provisions given in Article [number]. Upon pain of lapsing of this right, the Operator shall notify the Authority in writing at least [number] years before the extension might commence that he wishes to avail himself of his right.

The effectiveness of a full concession agreement is dependent upon the fulfillment of specified conditions precedent and evidence that no circumstances exist that may result in the early termination of the agreed terms (see Box 25).

6.4. Concession Parties

Parties under a full concession agreement usually consist of a port authority and a sole sponsor or a consortium of sponsors (often called a special vehicle company or special purpose company [SPC]). The consortium may not necessarily be identical to the operator, but may include the operator as a consortium member.

The amount of share capital provided for a new venture is one indication of the consortium's confidence regarding the port's prospects and future development. In developing countries, the International Finance Corporation (IFC) may be a source of share capital for the venture. Whether the port authority itself may take shares is debatable, but preferably the port authority should not be a shareholder because it could create conflicts of interest due to its role as a landlord port manager and regulator and compromise its position with respect to other port users. Based on the estimated income expected during the concession period and the infrastructure and superstructure to be constructed during the concession period, the

Box 26: Reference Clause on Nomination of Operator of a Container Terminal

This INDENTURE made and entered into at [place] this [number] day of [month] [year], by and between the Port Authority of [name] a body corporate [a public entity], incorporated under the [name] Act No [number] of [date] and having its Head Office at [street], [city], in [country], (hereinafter called and referred to as “the Authority,” which term or expression where the context so requires or admits, means, and includes the said Port Authority and its successors or assignees) on the one hand, and the (name) Container Terminal Ltd., duly incorporated in [country] under the Companies Act of [date] and having its registered office at [name] street, no.[number], [city] in [country] (hereinafter referred to as “the Operator”), which term or expression shall where the context so requires or admits, means, and includes the said Container Terminal Ltd. and its successors and assignees), on the other hand,

Article...

The Authority hereby appoints the Operator to provide cargo handling (or container) services at the port area(s) known as [name of area], under the terms and conditions specified in this Agreement.

Source: Author.

consortium should be expected to leverage its investment with borrowed money from various sources, usually from a syndicate of commercial banks or through the issuance of bonds or other capital market instrument under an indenture.

Finally, the consortium may conclude a management contract with a professional operating company. Both the financing arrangements and the management contract form part of the concession documents (see Box 26).

6.5. General Rights and Obligations of the Operator

The operator generally acquires leasehold rights and obligations when assuming the control of an existing facility under a concession agreement. The concession agreement generally limits use of the leased premises exclusively for port

purposes and for handling certain cargoes. Within these limits, an operator is free to develop the business. Detailed restrictions for cargo handling on the terminal should be avoided, with the exception of dangerous and polluting cargoes.

There are many other critical subjects to be included in a concession agreement. Two issues of main importance are:

- The right of the concessionaire to transfer the leasehold rights to a third party, including conditions under which such transfer can occur (the right to transfer should be sufficiently flexible to encourage the financing of port improvements).
- The right to own all newly constructed buildings and superstructure improvements on the premises during the lease period, with compensation by the port authority (lessor) after termination of the agreement, or, in the case of transfer to a third party, sale of such assets according to the terms of the finance agreements (in some jurisdictions it may be necessary to require such sales to comply with local procedures or applicable bulk transfer notice requirements).

Full concession agreements (including BOT arrangements) and lease agreements usually stipulate that the fixed assets revert to the port authority at the end of the lease. Transfer may be effected with or without compensation, depending mainly on the duration of the contract and the investment value of the fixed assets. It is not unusual for a port authority to pay the concessionaire or lessee the depreciated value of the assets at the end of the concession period.

Finally, a concession agreement may contain an exclusivity clause designed to prevent the concessionaire or operator and any of their subsidiaries from competing with other terminal operators for the particular traffic for which the concession was granted, within defined geographical areas and for stated time periods, as the market situation and the scope of the investments

may reasonably require. In any case, this time period must remain short enough compared to the length of the concession agreement, and not exceed a period of preferably five years after completion of the building program in the case of a BOT arrangement.

Generally, port infrastructure constructed by a concessionaire through a BOT arrangement remains the property of the port authority. With respect to movable assets placed on the concession area by the concessionaire, ownership rights over these assets generally remain with the concessionaire (with the right to pledge these assets as collateral to financiers) throughout the concession period and may, depending on the concession agreement's terms, be transferred to the port authority when the concession terminates. Some legal systems allow a concessionaire or lessee to own buildings, installations, and other immovable property located on port authority owned land (for example, in the Netherlands). Therefore, operators may use these assets as collateral for bank or shareholder financing. In countries where the port area constitutes part of the Maritime Domain, private ownership of immovable property will be considered fixtures that cannot be owned independently from the Maritime Domain (for example, in Croatia). In such cases, user rights (in some instances including the right to mortgage—but not own outright—the asset) may be allowed under the concession. Whichever is the case, the port authority should include in the concession detailed provisions pertaining to ownership or user rights over those assets that are erected by the concessionaire in the concession area (see Box 27).

6.6. General Rights and Obligations of the Port Authority

During the concession period, the port authority often assumes dual roles. On the one hand, the port authority serves the public interest as a regulator monitoring performance under the concession agreement. On the other hand, the port authority may possess a stake in the port enterprise as a participant in a public-private

Box 27: Reference Clauses on General Rights and Obligations of the Operator

Subject to other provisions of this Agreement and its liability under any law, and without in any way limiting its ability, the Operator hereby undertakes and binds itself to the following at the Concession Area:

- To provide, inter alia, effective and efficient container (cargo handling) services according to the performance parameters as described in Annex [number].
- To ensure that facilities leased by the Authority are operated with due care and skill and in accordance with the terms of this Agreement.
- To repair and make good to the satisfaction of the Authority all damages and breakages to infrastructure and superstructure made by the Operator or by third parties acting under the responsibility of the Operator, fair wear and tear excepted.
- To ensure that the sites are kept clean, and that the environment is fully protected.
- To draw up rules for safe systems of work and operational procedures to ensure health, safety, and welfare of all workforce and terminal users in compliance with the applicable laws and regulations, international practices, and the authority's guidelines.
- To implement an effective safety and security system and to comply with the guidelines of all competent Authorities.
- To ensure that any safety and security remedial action requested by any competent Authority is acted upon immediately.

The Operator shall apprise the Authority of the current work schedule, the previous day's vessel operations, and the following day's vessel planning and work schedule.

Any damage to the site's environment shall be assessed and restoration costs billed to the Operator, who shall bear such costs.

Source: Author.

relationship with a private sector port user. There is an increasing trend for port authorities to become commercial actors, interacting with private terminal operators as economic partners, rather than acting as regulators. This trend is born of necessity—the port authorities and

terminal operators need each other. Therefore, it is a major challenge to find the proper balance between the regulatory relationship and the commercial interests of both parties. In this context, rights and obligations of the port authority have been modeled within the framework of a landlord port model.

Investments and capacity calculations are primarily based on traffic and throughput forecasts. In the case of a BOT arrangement requiring significant outlays by a concessionaire, the port authority (or the national government) might obligate itself not to concession, promote, or commence another competing terminal (or a terminal aggregating more than a certain capacity) in a nearby port area. If, unexpectedly, new capacity were to be created, the feasibility of a project might well be in jeopardy. There is often, especially in smaller ports, room only for one or two terminals handling a specific commodity. If the port authority is too preoccupied with intraport competition, terminal operators might end up in cutthroat competition, resulting in the bankruptcy of some of them at a time when the government's goal is to encourage sound private sector participation in the port sector (see Box 28).

In many concession agreements, the port authority constructs a list of activities that are permitted to be performed at the site. These activities should be construed as broadly as possible so the operator has maximum flexibility to develop the business and generate revenue (see Box 29).

6.7. *Transfer of Rights, Obligations, and Assets*

When an operator acquires an existing (former public) port facility, rights and obligations of the public sector owner transfer, along with the use (but not ownership) of the assets, to the private sector operator. When a new facility is constructed under a BOT arrangement, the new operator commissions the facility after successful commissioning tests or surveys have been conducted by an independent expert, usually a test certifier, who issues a commissioning certificate (see Box 30).

Box 28: Reference Clauses on General Rights and Obligations of the Port Authority

Subject to other provisions in this Agreement, the Authority shall exercise regulatory functions in respect of the conduct of port operations as detailed in the following subsections:

- Allocate berths at the request of the Operator, in accordance with established port policies, in order to satisfy the Operator's work program in the best overall interest.
- Chair Port Operations Meetings with one or more representatives of the Operator and of other port users.
- Set productivity targets and monitor the Operator's performance against set parameters (as per Annex [number]).

The Authority hereby undertakes and binds itself to:

- Provide and maintain the necessary basic infrastructure such as maritime approaches, canals, turning circles, breakwaters, aids to navigation, access roads, and so forth.
- Provide marine services including vessel traffic management, pilotage, towage, berthing, unberthing, and shifting of vessels.
- Ensure safe, orderly, and timely movement of vehicles and pedestrian traffic along the access roads.
- Maintain the security of all land and sea entrances to the port area (those existing presently and in the future).
- Provide and maintain all perimeter fencing around the port area.
- Provide any services not listed herein and on which both parties will agree by this Agreement or by any other subsequent agreement.

When providing services listed above, the Authority, in line with the operational plans and work schedule of the Operator, will ensure that all such services are provided in a nondiscriminatory way and in accordance with the Operator's needs to enable him to meet the performance targets and other objectives to be achieved.

Source: Author.

When taking over an existing facility, the following rights and obligations of the operator are usually included in the concession agreement.

Box 29: Reference Clauses on Permitted Activities

Without a written consent from the Authority, which refers to this provision, the site may only be used for/as:

- Loading and discharging of general cargo, dry bulk/liquid cargo, or containers.
- Transport and storing of general cargo, dry bulk/liquid cargo, or containers.
- Handling of other cargoes, only if necessary and on a limited basis.
- Stuffing and stripping.
- Controlling and guarding of general cargo, dry bulk/liquid cargo, or containers.
- Operating equipment necessary for the above.
- Repair and maintenance of containers.
- Repair and maintenance of equipment.
- Repair and maintenance of buildings.
- Providing accommodation for personnel and administration.
- Providing services to vessels.
- Providing services to customs and other government agencies.
- Providing services and accommodation to ancillary services such as, pilots, agents, ship handlers, and so forth.
- All other activities necessary to conduct efficient cargo handling operations.

The Operator is obliged to continuously exploit the site during the duration of the Concession Agreement.

A strip of one meter wide alongside the quay wall shall not be planted or built on, shall not contain roots or foundations, and shall only contain cables, pipes, roads, and rails.

The Authority may reduce the maximum permitted load(s) if, in its opinion, the condition of the quay wall provides a reason for doing so.

Permitted use shall also be taken to include the construction of the necessary buildings and/or installations for the benefit of the business of the Operator, with the exception of (service) home(s). The number, nature, and location of these constructions and/or installations shall be subject to the approval of the Authority.

Source: Author.

Box 30: Reference Clauses on Newly Built Assets in the Concession Area (BOT arrangement)

Operational infrastructure constructed by the Concessionaire/Operator in the Concession area, in furtherance of its business, shall be and shall remain the property of the port authority, without any claim for or reimbursement from the Port Authority/Lessor for the cost of value thereof.

Port superstructure and movable assets constructed and/or installed by the Concessionaire/Operator, in furtherance of its business, shall remain owned by the Concessionaire/Operator. At the end of the Concession period, the aforementioned assets shall either be transferred to the Port Authority after payment to the Concessionaire of the written down value of those assets, or be demolished or removed from the Concession Area.

Source: Author.

Rights:

- To succeed to and to carry on the business of the port facility and supporting services of the port authority, as established under the port law.
- To succeed to the ownership, rent, or lease of certain properties, movable and immovable, located on the terminal in the port or used by the port facility and supporting services.
- To succeed to certain rights, powers, privileges, and interests of the port authority pertaining to cargo handling operations and supporting services on the terminal.

Obligations:

- To succeed to certain liabilities of the port authority pertaining to cargo handling and supporting services carried out at the terminal.
- To receive and maintain all books, accounts, and documents relating or

- pertaining to the terminal and supporting services.
- To offer employment to officers and employees of the terminal and supporting services.
- To succeed to contracts and agreements entered into for the purposes of and relating to the business of the terminal and supporting services; usually, these contracts are specified in a schedule annexed to the concession agreement.
- To succeed to all actions and proceedings instituted by or against or relating to the terminal (it is not uncommon for the operator and port authority to negotiate an indemnity for liability incurred as a result of certain proceedings).

The transfer of assets to the new operator under a concession agreement requires thorough inspection and the determination of what repairs or backlog maintenance, if any, are expected to be carried out by the port authority prior to the transfer. Existing assets forming part of the operator's leasehold and their attendant condition and quality will be reflected in the concession fee. The highest concession fee (relative to value of assets transferred) is usually accorded in jurisdictions allowing for the ownership of superstructures to be transferred to the operator.

When building terminal facilities under a BOT arrangement, the operator has to design and construct the terminal, including quay walls and other infrastructure works. The design has to be carried out in accordance with functional requirements and design solutions set out in the approved DPR as well as under the construction program included in the agreement. Major aspects of the construction process will have been identified for completion by stated times, and if these milestones are not met the port authority usually has the right to assess penalties or terminate the concession. In practice, technical problems should be expected to arise. Although the operator may not alter the construction program without approval of the

authority, reasonable requests for changes to the program are usually approved. The port authority customarily reserves the right to appoint a construction observer, usually an engineer. Commission or transfer of the new assets is concluded on the basis of a commissioning certificate issued by an independent test certifier, according to the relevant provisions of the concession agreement.

The construction program included in the concession agreement is in principle binding. The completion of relevant parts of the program is indicated by the milestone achievement date. The construction, however, cannot extend beyond the milestone sunset date, unless waived or extended as a result of a force majeure event. Such date constitutes a termination event for the port authority; in other words, the port authority may terminate the concession when the operator is not able to finish the construction within the agreed-on time (see Box 31).

6.8. Performance Parameters

Concession agreements often include performance parameters to measure the success of the operator in managing the port or terminal. A port authority may want to highlight performance indicators and incorporate certain ones into the concession. These parameters can relate to:

- Realization of a agreed (minimum) number of ship calls.
- An agreed (minimum) quantity of cargo passing through the terminal.
- Efficient utilization of the terminal.
- Service quality.

Generally, from the port authority perspective, there may be a tendency to overregulate performance by imposing very detailed and strict parameters. This tendency appears to be more of a problem in the case of new terminals or terminals with a low level of current throughput. Detailed parameters require extensive control and limit an operator's flexibility. Also, the port authority must devote resources to their administration. Performance parameters that

Box 31: Reference Clauses on Transfer of Assets

The present Agreement relates to the [name] Terminal at [name] Port with associated buildings and storage area, as more fully described in Annex [number] to this Agreement, which shall form an integral part of this Agreement, and which may be modified from time to time by mutual agreement between the Authority and the Operator.

A list of facilities, buildings, equipment, and others together with a detailed inventory of the contents thereof leased/transferred to the Operator is shown in Annex [number].

A joint survey of the facilities, buildings, equipment, and contents thereof shall be effected before the time of take over, with the objective that the site should be delivered to the Operator in good working condition.

Before commissioning, the Operator may require major improvements and modifications to be effected on infrastructure, superstructure, or facilities concessioned/leased by the authority to the Operator, which he deems to be in an insufficient technical condition. The Operator shall submit such requests to the Authority for consideration. The Authority is obliged either to carry out the requested improvements and modifications at its own cost or take the insufficient technical condition of infrastructure, superstructure, or facilities into account when negotiating the Concession Fee.

All major modifications and improvements, as above, to infrastructure and facilities concessioned/leased to the Operator under this Agreement, which the Operator deems to be necessary to improve its services, shall be subject to written approval of the Authority and the costs thereof shall either be borne by the Operator or be reflected through a readjustment of the Concession Fee.

In cases where repairs or other works may have to be performed by the authority, prior to the start of operations, the Authority shall be responsible to meet the costs of repairs or other works, unless these are due to the negligence of the Operator.

Source: Author.

incentive should be given to the operator, because extra traffic and throughput results in extra revenue for the port authority. Performance parameters have produced the best results when they were established with the idea of not controlling the operator but creating a win-win situation for both parties.

There are no standard performance criteria for handling various commodities. Situations differ widely from country to country and from terminal to terminal. Much depends on labor conditions, the attitudes of labor unions, and factors such as the size and age of vessels, consignment size, and timely availability of information. Therefore, performance criteria ordinarily reflect local conditions and take into account the reality of all relevant local factors influencing a port.

A vast majority of concession agreements relate to container terminals. In this field, many items are standardized, resulting in the development of internationally accepted, detailed performance criteria.

6.8.1. Productivity Targets

Productivity targets are usually designed in a phased manner, taking into consideration the emerging problems that a container terminal will face during the first years of its operation. For the purpose of the concession or lease agreement, two phases are usually defined. Phase 1 constitutes the start-up period, from the date operations commence to a later point one to two years later. During this time, the new management and the workforce have an opportunity to structure operations, develop commercial policies, and engage in training various categories of personnel. Phase 2 is when the terminal is expected to work at peak efficiency, with professional management and a well-trained workforce in place. The following types of productivity targets can be included in the concession agreement's performance provisions.

Crane productivity: Crane productivity measures the number of equivalent container movements

are most likely to succeed are those set at a level that a port authority believes will result in the agreed-on concession fee being paid. When required levels are exceeded, a positive financial

per crane working hour. It is calculated by dividing the number of equivalent container movements handled by a crane by the number of hours the crane operated. Crane productivity is usually expressed as either the equivalent container moves per gross crane working hour or the equivalent container moves per net crane working hour (deducting all nonoperational and idle time experienced by each crane). Equivalent container moves are usually calculated as the sum of:

- Each container discharged.
- Each container loaded.
- Each container shifted to gain access to another container—counted as one move if the container is shifted within the vessel, but as two moves when it is shifted via the quay.
- Each container moved to another position on the request of the ship operator (a restow)—counted as one move if it is restowed directly to another location in the vessel and as two moves when the restow involves discharging to the quay and later reloading to a new position on board the vessel.
- Each container lifted in error and returned to the ship—counted twice.
- Each hatch cover lifted to the quay and replaced by the quayside gantry cranes (or ship mounted cranes)—two moves for every cover removed.

Ship productivity: Ship productivity is the output achieved per ship working hour and is used to measure the efficiency of ship operations. It is the most important indicator to ship operators and a valuable means for measuring year-round terminal performance. It is recorded and expressed in four categories:

- Equivalent container moves per ship-hour in port (calculated by dividing the total equivalent container moves by the time spent in port, measured in hours).
- Equivalent container moves per ship hour at berth (calculated by dividing the total

equivalent container moves by the time the vessel spent alongside the berth, measured in hours).

- Equivalent container moves per gross working hour (calculated by dividing the total equivalent container moves by the time the vessel is worked, measured from the start of the work to the termination of the work).
- Equivalent container moves per net ship working hour (calculated by dividing the total equivalent container moves by the gross working time, minus the nonoperational time and the idle time).

Two other categories are nonoperational time, the period when the berth is not scheduled to be worked (for example, meal breaks) and idle time, the period when work has stopped for unexpected and unscheduled reasons (for example, equipment breakdown).

Quay productivity: Quay productivity measures the throughput in equivalent container moves per unit of time per meter of quay length. This criterion is included to encourage the operator to successfully promote and market the terminal facilities and to increase traffic. The targets may be different for each applicable phase of the project.

Terminal productivity: Terminal productivity expresses activity in terms of the number of containers handled per square meter or hectare of terminal area per time unit. It is calculated by dividing terminal traffic, measured in TEUs, by the total terminal area in square meters or hectares. The targets may be different for each applicable phase of a project.

Dwell time: Dwell time is a measure of the time spent by containers in the terminal. It is a major indicator of the efficient use of the terminal area. It measures the period from the time a container is lifted off the ship to the time it departs the container yard. An appropriate indicator of quality of service is also the truck turnaround time from entry to exit in the terminal area when delivering or picking up a box, with

15–20 minutes being the common efficiency benchmark.

Labor productivity: Labor productivity figures relate traffic and terminal throughput to the total number of people employed by the terminal operator. This indicator is included to enable the operator and the port authority to monitor labor productivity and, indirectly, terminal operating costs. Labor productivity indicators may be based on the total number of hours worked by the total number of or certain categories of employees in the terminal.

Utilization measures: This category of indicators measures the intensity of the use of terminal resources by the operator. It includes two important indicators, the berth working index and the yard utilization index. The berth working index compares the total time vessels were worked at the quay with the total time that such vessels were berthed. The yard utilization index compares the number of storage slots occupied to the total number of available slots, and is typically calculated daily.

Performance parameters are best included in an annex to the concession agreement, with a section in the agreement referring to the detailed annex (see Box 32).

6.9. Transfer of Employees

When concluding a concession agreement for an existing terminal, it is common practice to engage all or part of the employees already working in the terminal or to extend an offer to join the new venture. This area is highly sensitive and should be handled with great care even before the concession is awarded. Module 7 deals with labor issues in greater detail. Another useful resource on this topic is the World Bank's *Labor Issues in Infrastructure Reform: A Toolkit*.

Often, as a result of years of neglect, unfavorable working conditions, and outdated equipment, workers lack the motivation to perform at an acceptable level. Often, they were members of unions that fought aggressively for the preservation of their jobs, sometimes resisting

Box 32: Reference Clause on Productivity Targets

The operator binds itself to:

- Use its best efforts to reach or exceed the minimum productivity targets specified in Annex [number], which is an integral part of this Agreement and which may be modified from time to time by agreement between the parties.
- Participate in a Monitoring Committee, to be jointly established by the authority and the Operator.
- Provide the authority with monthly reports on performance and productivity in a format to be agreed between the authority and the Operator, and provide the authority with any special report that, in exceptional circumstances, the authority may reasonably request.

In the event that the Operator fails to meet the performance targets as set out in Annex [number] (one) year after commencement of operations, the authority may levy a penalty on the Operator at a rate of \$ [amount].

Source: Author.

any change that they feared could have endangered the continued employment of the workforce. New operators taking over an existing terminal must therefore anticipate a start-up period for motivation of new workers as well as for retraining. Otherwise they may face the inefficiencies of an underemployed workforce. The reference clauses should be considered only as an indication of how to approach the issue. Whether existing employees should transfer into a new operator's service on terms and conditions no less favorable than those enjoyed by them immediately prior to their transfer is a matter of negotiations among labor, the new operator, and the government (see Box 33).

6.10. Force Majeure

An operator cannot be held responsible for fully achieving performance goals when unforeseen and uncontrollable events intervene (force majeure). However, such events should not automatically excuse the concessionaire from its financial obligations payable under a

Box 33: Reference Clauses on Selection and Transfer of Personnel

The Operator shall engage professional management personnel (including top management) for the efficient and effective operation of the Terminal Area. The management personnel shall be selected from amongst persons presently in the service of [name of present terminal]. In the event that the Operator is unable to select sufficient management personnel from amongst the [terminal's] staff, the Operator is allowed to appoint suitable management personnel selected from outside the [terminal's] organization. When for certain functions no suitable candidates can be found in [the relevant country], the Authority will allow the Operator to select expatriate personnel. (Sometimes the provision of expatriate staff is an obligation—this is particularly the case when a transfer of expertise is a major objective of the concession agreement).

The Port Authority shall use all reasonable endeavors, upon request of the Operator, to obtain work permits, long-term nonimmigrant visas, and tax clearance certificates for all expatriate personnel appointed by the Operator.

The Operator shall select its labor force from amongst persons presently employed by the [terminal]. These persons will be selected by the Operator based on their skills and suitability in the discharge of their duties. Selected persons will have the option to enter into the fixed service of the Operator.

Notwithstanding the foregoing provisions, in the event any persons appointed from among the [terminal's] personnel are found to be incompetent, unsuitable, or unfit in discharging their duties within a period of one year, the Operator shall be entitled to terminate the services of that person, subject to the provisions of any employment contract.

The terms and conditions to be drawn up by the Operator shall take into account the salaries and terms and conditions of service, including any accrued rights to leave, enjoyed by the persons transferred to the service of the Operator.

Source: Author.

concession agreement. The operator should be encouraged to obtain insurance to cover the risks of such events as much as possible (see Box 34).

Box 34: Reference Clauses on Force Majeure

Upon the occurrence of a Force Majeure event, the party so affected is relieved of performance under this Agreement for the duration of the event. Notwithstanding this, the occurrence of a Force Majeure event shall not excuse the Operator from making payments due hereunder in a timely manner.

Parties agree to use all reasonable endeavors to mitigate the effects of any Force Majeure event.

Source: Author.

A force majeure event is any event or circumstance or combination of events that:

- Is outside the control of and unexpected by the affected party.
- Could not be avoided, prevented, overcome, or mitigated with reasonable foresight, prudence, diligence, or otherwise taking action according to good international practice.
- Results in the temporal or permanent termination of operations.
- Materially prevents, hinders, or delays performance of a party's obligations under the concession.

In most concessions, the main force majeure events are the following:

- Acts of God.
- Nuclear explosion and radioactive, biological, or chemical contamination.
- Landslides, earthquakes, tsunamis, and severe weather such as hurricanes or typhoons that result in closure of the port.
- Epidemic, plague, or quarantine.
- Blockade or closure of the port.
- Curfews or restrictions on travel within the port's country resulting from any of the matters mentioned in this list.
- War (whether declared or not), civil war, invasion, embargo, military coup,

revolution, or armed conflict on a national scale.

- Sabotage, criminal damage, terrorism, but only when the terminal is affected.
- Riot, civil commotion, or insurrection with effect on a massive or national scale.

The occurrence of a force majeure event may result in the extension of the term of the concession or the extension of the construction period after the force majeure event has subsisted.

6.11. Lease of Facilities

At many ports (for example, Antwerp, Rotterdam, and Hamburg) the operator may be best able to perform under a straightforward lease contract. In a concession, with or without a BOT arrangement, lease conditions form part of the overall concession. The reference clauses contained in Box 35 and Box 36 can therefore be used under both types of contracts. Lease arrangements present a number of strategic

Box 35: Reference Clauses on Lease of Facilities

The lease refers to allotment(s) of land marked Lot [number], and Lot [number], demarcated in red and depicted in Plan No: [number], dated [date], made by the Chief Hydrographic Surveyor and belonging to the Authority, situated at [location] within the Municipal limits of [city name] and bounded on the North by [area], on the East by [area], on the South by [area] and on the West by [area], containing in extent [number] hectares, [number] acres.

The quay walls and the banks below the ground level (yet not underground), as well as in the case of the banks, the body of water above it, are not included in the right of lease, but remain in the ownership of the Authority.

The Operator is entitled to sublet the buildings and the ground in whole or in part to a third party, or to give these in use in any other manner, only after having obtained prior conditional or unconditional permission from the Authority.

Source: Author.

Box 36: Reference Clauses on Site Conditions

The following conditions are applicable:

- The site is determined to be [number] square meters.
- The site is unencumbered by other limiting rights or claims, nor by other qualitative obligations and/or perpetual clauses other than those mentioned in this Agreement.
- The site is accepted by the Operator in the state in which it is found on the date the lease commences.
- Cables, pipes, and pipelines of third parties that are situated on the ground are not included in the lease.
- The authority is not liable for damages as a result of defects in cables, pipes, pipelines, and so forth.
- The Operator is liable for damages that have been caused to cables, pipes, pipelines, and so forth as a result of any use of the ground.
- The Operator shall at all times allow access for the benefit of the owners to the cables, pipes, pipelines, and so forth in the leased property for maintenance and repair work.
- The site includes quay walls and banks with foundations and piles, constructed by the Authority. The Authority is not liable for the present suitability of the quay wall construction.
- The Authority is not liable for damages of whatever nature, which might arise for the Operator from the condition of the leased property, especially not for damages caused by basic structures, pieces of stone, foundation remnants, poles, pipes, cables, anchors, sunken vessels, or any object whatsoever that may be present on or in the leased property or in the surrounding area, and/or works and/or materials or substances on or in the leased property or in the surrounding area. The ground is leased with a bottom level alongside the quay wall being part of the main yard of [number] meters below [reference] level and alongside the quay wall of the [name or number] pier of [number] meters below [reference] level. The Authority will ensure that the water depth along the quay walls will remain at the agreed level. In the event that the water depth is less than the agreed

Box 36: Reference Clauses on Site Conditions (*Continued*)

depth, the Authority will not be liable for damages as a result of this situation. The Operator cannot invoke the right to dredging as long as the bottom has not risen to [number] below [reference] level at a certain location along quay wall(s). The Authority is obliged to carry out dredging within a reasonable period (but not longer than three weeks) after the Lessee has submitted a request to that purpose. If the Authority fails to do so, it shall be liable for all damages resulting from the insufficient water depth along the quay wall(s).

Source: Author.

issues for consideration, the most important of which are:

- *Ownership of assets:* Generally, a new operator will invest in superstructure and equipment. Under a BOT arrangement, operational infrastructure, such as quay walls, also forms part of the investment. If the relevant legal system allows private ownership of such assets, which is not always the case, their transferability becomes a critical issue. If private ownership is not allowed, an agreement should be reached on how to compensate, at the end of the period, the operator for investments made. If it is legally impossible to compensate the operator or the transfer the assets to a third party, the duration of the agreement remains the only vehicle available for creating a bankable arrangement. Within the framework of a balanced public-private partnership, the port authority may allow the operator to own superstructure on the site, as well as grant the right to transfer such assets to third parties under certain previously agreed-on conditions, regardless of the inalienability of other port property.
- *Maintenance:* Concession terms applicable to maintenance of assets, especially infrastructure, are considered very carefully by operators and their investors. If the assets revert to the port authority at the end of the lease period, maintenance standards should be set by the port authority to avoid deterioration during the final part of the period. Maintenance of operational infrastructure is usually the responsibility of the port authority. Such infrastructure is a strategic asset and should not be allowed to deteriorate. That risk exists, however, especially if an operator is in financial difficulty, since maintenance often becomes the first victim of an operator trying to cut costs. However, in many concession agreements provisions have been included obliging the operator to maintain all assets of the terminal, including the operational infrastructure. This requires the port authority to set maintenance standards, which are usually included in one of the schedules.
- *Level of control by the port authority:* Even if legal title over assets remains with the port authority, full use and easy adaptability of the assets should be guaranteed. While the port authority should exercise some form of control, such control should be based on clear standards and be flexible to permit the operator to quickly respond to market requirements. Prompt modification and extension of the site and the superstructure may be possible based on a previously agreed-on procedures. Moreover, control standards could be uniform for the entire port area to create a level playing field for all port operators.
- *Subletting:* To allow flexible port development, the port authority should allow the subletting of ground and assets under specified conditions.

The specific content of any lease is very dependent on the site conditions and local factors. The lease usually presents in detail the responsibilities and liabilities allocated to each party. When an existing site is leased or concessioned, conditions should be enumerated clearly to give

lenders certainty of outcomes under particular “what if” scenarios.

6.12. Site Access

Clauses should be included in the concession agreement to fence off the site, while still allowing sufficient, unimpeded access to the site to enable the port authority to perform inspections (see Box 37). The port authority usually takes responsibility for all common areas, including road connections and pedestrian areas. An operator will seek to hold the port authority liable for all undue delays in road traffic destined for the terminal.

6.13. Governing Law

Most often, the governing law of the concession agreement is the national law of the country where the terminal is located. Some foreign lenders, however, require that documentation be governed by U.K.[BCJ7] or U.S. law. Issues relating to governing law, submission to jurisdiction,

Box 37: Reference Clauses on Access to the Site

Free access to the site and the buildings on the site shall have to be granted at all times to the officers and employees of the authority, including police officers and/or other persons who are authorized by the Authority, who may have been or may be appointed for the supervision of compliance with regulations and the lease conditions, or for carrying out repairs. The Authority's representatives shall have access to any of the facilities and premises to inspect and examine their condition, provided that, unless in cases of emergency or when circumstances so justify, the Operator will be informed of such inspection and that such inspection, whenever possible, shall not disturb the Operator's operations.

Free mooring opportunity must be allowed along leased quays, berths, and other mooring places for service and dredging vessels used by Port Authority employees or persons authorized by the Authority in the execution of their duties. Mooring of such vessels should not unduly disturb cargo operations.

Source: Author.

Box 38: Reference Clause on Governing Law

The Agreement shall be construed and governed by the law of the Republic/Kingdom of [name].

Source: Author.

and dispute resolution should be addressed at an early stage of the negotiation between the port authority and the operator, particularly in the case of a concession involving a BOT agreement (see Box 38).

6.14. Freedom to Set Tariffs

To respond to market competition, operators should have the freedom to set their own prices. The operator should be expected to negotiate periodically with its customers and may provide quantum rebates in return for increased throughput. Only in a situation when the operator is in a monopoly position might there be a reason for government interference in tariff setting. To avoid conflicts of interest with the port authority, an independent port regulator is usually given authority to oversee tariff regulation (see Module 6 for a full discussion on economic regulation). The mere fact that competing ports in the country offer lower tariffs may not be a reason for regulation of tariffs. When it can be proven that competing ports offer lower prices as a result of distorting government subsidies, the competent authorities should take measures to eliminate such subsidies, such as through a complaint to a competition authority. Thus, prices should only be regulated in case of abuse of a monopolistic position by an operator, such as in predatory pricing (see Box 39).

6.15. Taxes

National or local taxes for the leased site(s) are usually paid by the operator. At times, to encourage port development, certain promotional rates or tax holidays are extended to the operator during the initial phases of operation. Such incentives are a function of national fiscal policy (see Box 40).

Box 39: Reference Clause on Price Discrimination

The Operator agrees that the charges for his services rendered in connection with his operations on the concessioned premises shall be competitive within the port and with other competing ports having such facilities and services. The Operator shall, however, at all times have the right to increase or decrease such charges and modify the relevant rules and regulations, in accordance with sound business practices.

In the event the Port Authority (or port regulator, if applicable) receives a complaint or complaints of discrimination on the part of the Operator of the concessioned premises and the Port Authority (port regulator) concludes after thorough investigation that there are reasonable grounds to believe that discrimination has been practiced by the Operator, then the Operator, upon written notice to him by the Port Authority (port regulator) shall cease and desist from such practices.

Source: Author.

Box 40: Reference Clause on Taxes

The Operator shall reimburse the Port Authority for all taxes, dues, concession fees, and public levies under whatever name, including the surcharges, which the Port Authority has to pay because of the leased property or the buildings thereon.

Source: Author.

6.16. Concession Fee

There is no generally accepted standard for a concession fee. This fee is usually determined as the sum of a fixed fee for the use of the areas under administration of the authority and or a variable fee in the form of a throughput royalty for the right to perform cargo handling services. The fee amount is a function of local circumstances. The fixed portion may represent the infrastructure costs (and superstructure costs, if applicable) of the terminal, including financing costs. The structure and level of the concession fee is a primary element for analysis by project lenders. The variable fee is often a

function of the market position of the port overall (that is, what the market can bear) and other considerations, such as the creation of a fund for excess port workers. An important issue is the indexation of the concession fee (TEU fee). This fee is usually expressed in U.S. dollars, euros, or other hard currency. Since the term of the concession might well be more than 30 years, it is evident that there is a serious inflation risk. A concession agreement should therefore include a specific clause on indexation. Indexation should be applied to both fixed and variable fees. The easiest option is adjusting the fee periodically on the basis of a basket of currencies, such as a combination of the U.S. dollar, the euro, and the yen; the example in Box 41 is somewhat more complicated. Sponsors and operators are often not willing to provide for total compensation of inflation and try to put the risks as much as possible on the port authority.

6.17. Insurance and Indemnity

Insurance for employees, equipment, and vessels covering injury and damage within the concession area is typically specified in a concession agreement. Moreover, the operator is expected to indemnify the port authority against a variety of incidents pertaining to port operations and other events (see Box 42).

6.18. Physical Security

A concession agreement usually contains clauses pertaining to security in the port area. Generally, these issues fall under a port authority's jurisdiction, although a terminal operator also bears part of the responsibility. Since the ratification of the ISPS Code (International Ship and Port Facilities Security Code) by most maritime countries, security has improved considerably. The code applies to all commercial vessels undertaking international voyages as well as all port facilities. The concession should oblige the operator to apply the relevant provisions of the code and to cooperate with the port authority and the harbormaster within the framework of the required port security plan (see Box 43).

Box 41: Reference Clauses on Concession Fee

The concession fee exists of two elements:

- A Lease Rent, related to the amount of square meters of port area leased by the Operator.
- A Throughput Royalty (or TEU Fee), related to the amount of cargo/number of containers handled on the concession area by the operator.

A fixed sum of \$ [amount] per annum shall be paid by the Operator as the Lease Rent. This rent shall be paid in advance in four equal installments on January 1, April 1, July 1, and October 1 into account number [number] with [name] Bank in [place] in the name of [name] Port Authority. If the period for which the right to lease is granted does not commence on one of these dates, then the Lease funds incurred over the period between the commencement and the beginning of the next quarter will be paid on the first upcoming date mentioned above.

The amount owed to the Authority in accordance with the right to lease shall be paid in full and without any discount or debt compensation, regardless of nature.

All adjustments shall be calculated by multiplying the rent sum, which applied most recently by a fraction of which:

- The numerator is formed by the price index figure as given by [name of agency], which is

published in the seventh calendar month preceding the time of adjustment.

- The denominator of which is formed by the same price index figure, which applied in the same month a year earlier.

Should the details referred to in the previous paragraph cease to be available, then the authority is entitled to calculate the Lease Rent adjustment on the basis of any other similar index or methodology. This adjustment requires mutual agreement. If such agreement cannot be reached, then this shall be determined in the manner given in Section [number] on the basis of the advice of three experts.

The Operator will pay to the Port Authority an annual Throughput Royalty in the amount of \$ [amount] per ton cargo throughput/Twenty Feet Equivalent Unit (TEU) container handled in the concession area, regardless the manner in which it is handled or which mode of transport is used, payable in two installments after every six months (within 30 days after the end of each period). The Throughput Royalty will increase every year in accordance with the price index figure given by [name of agency] (or any other mutually agreed index).

Source: Author.

Box 42: Reference Clauses on Insurance and Indemnity

The Operator undertakes to provide the necessary and relevant insurance covers, in respect of its employees, equipment, and vessels being serviced for injury, damage to the terminal, vessels, and/or cargo when they are, at all material times, considered to be under control of the Operator.

The Operator hereby holds the Port Authority free and harmless from any and all liabilities and claims for damages and suits for or by reason of any death or injury to any person or damages to property of any kind, whether the person or property of the Operator, its subcontractors, agents or employees, or third persons, arising out of negligent or intentional act or omission of the Operator in connection with this Agreement, and the Operator shall indemnify, save, and hold harmless the Port Authority from all liabilities, charges, expenses (including reasonable attorneys' fees), and costs on account of claims, suits, and losses arising therefrom.

The Port Authority hereby holds the Operator free and harmless from any and all liabilities and claims for damages and suits for or by reason of any death or injury to any person or damages to property of any kind, whether the person or property of the Port Authority, its subcontractors, agents or employees, or third persons, arising out of negligent or intentional act or omission of the Port Authority in connection with this Agreement, and the Authority shall indemnify, save, and hold harmless the Operator from all liabilities, charges, expenses (including reasonable attorneys' fees), and costs on account of claims, suits, and losses arising therefrom.

The Operator indemnifies the Port Authority against all claims due to noncompliance by the Operator with the provisions relating to the site, which have been given by the competent public bodies.

Source: Author.

Box 43: Reference Clauses for Security

The Port Authority confirms that unless otherwise agreed under this Agreement, it shall, at its own cost and expense, provide security at the Port, generally for the prevention of terrorism, hijackings, sabotage, and/or similar acts or occurrences.

The Port Authority shall be responsible for the provisions and maintenance of all perimeter fencing around the Port and the general security within the Port, having full regard to the provisions of the ISPS Code and the law.

The Operator shall be responsible for the provision and maintenance of perimeter fencing around the Concession Area and for its own security arrangements within the Area in order to maintain the proper and orderly conduct of its business and the general security thereof. Furthermore, the Operator shall abide by and implement any instruction issued by the Port Authority aiming at enhancing the security measures within and around the Concession Area.

Subject to the rights granted to the Operator above, all organizations authorized under the ISPS Code shall be entitled, if and when deemed necessary by the Port Authority and/or the authorized organization, to deploy their security personnel in the Concession Area and the Operator shall not be entitled to any compensation for any disruption of its operations or loss or damage resulting from the Port

Authority's actions or the actions of any other organization authorized under the ISPS Code other than those resulting from its willful or grossly negligent acts or omissions.

Subject to the rights granted to the Operator, the Port Authority shall be entitled to inspect and search all vehicles and other modes of transportation including vessels entering the Concession Area or departing there from and similarly to search or question any person entering the Concession Area or departing there from, without unduly or unreasonably disrupting the operations of the Terminals.

The Parties agree to establish, review, and implement procedures as may be required from time to time under the ISPS Code.

The government agrees that it shall, at the request of the Operator, provide and procure the services of security forces of the relevant authority as may be necessary to prosecute persons for any offense committed within the Concession Area.

Any security forces ordered into the Concession Area for the purpose of protection of the persons and the property and vessels present in the Area, shall be allowed by the Operator to perform their task and duties under the supervision of the competent authority.

Source: Author.

6.19. Unclaimed Cargo and Carriers

Often, cargo at the port is not claimed by the rightful owners. In cases of complex customs legislation or port bylaws, warehouses filled with unclaimed cargoes may burden the operator's ability to manage the terminal and meet performance targets. Therefore, the operator will expect to set clear rules with respect to such cargoes and who bears removal responsibility and costs in conformity with custom's regulations (see Box 44).

6.20. Information and Communication

It is essential that a port authority is able to gain access to recent, relevant, and direct information on all aspects of port operations, including

Box 44: Reference Clauses on Unclaimed Cargoes

All containers, packages, and cargo deposited in the terminal and not removed at the expiry of a period of [number] days or [number] days in case of transshipment containers, may be disposed of by public auction, in conformity with Section [number] of the [name] Act, No. [number] of [year].

As regards to unclaimed containers containing perishable or hazardous goods, the operator shall dispose of such goods according to the requirements set down by the relevant authorities and as per national regulations in force.

Source: Author.

Box 45: Reference Clauses on Information and Communication

The Operator shall install and maintain an efficient information and communication system and shall provide online information to the authority on all aspects of operations necessary for providing marine services and for monitoring.

The authority and the Operator will agree, in writing, on the type and flow of extra information that may be communicated to the authority on request.

The Authority and the Operator shall immediately inform each other of any matter that may affect the operational performance of the Operator under this Agreement, including but not limited to:

- Fire within the terminal or within the Authority's area of responsibility.
- Damages/stoppages caused by severe weather conditions.
- Industrial disputes with risks of work stoppages.
- Major damage to facilities, premises, and/or equipment.
- Pollution of the environment within the Authority's area of responsibility.

Source: Author.

marine operations and cargo throughput. The port authority should be informed promptly about all incidents occurring in the port area so that it can undertake appropriate measures in response. The agreement includes a requirement for the operator to provide such information (see Box 45).

6.21. Termination and Prolongation

Termination clauses of a concession agreement are of prime importance for the relationship between the port authority and the operator, especially under a BOT arrangement. The concession agreement represents a negotiated balance between the interests of the port authority (an efficient and economic use of the port land) and the operator (provision of cargo handling services on a profitable basis). Both parties are tied together in a long-term symbiotic relationship

where the fortunes of one directly bears upon the results obtained by the other. That contractual relation, therefore, should not be terminated without good cause.

The way termination clauses are conceived reflects the power balance between the two parties. An operator with alternative port locations available will not easily accept harsh termination clauses. On the other hand, a port authority should be aware that an operator might fail in the market, and valuable port land may lay unused for years if the right to terminate the concession is not clearly defined. Finally, lenders to the operator should be very careful in their analysis of these provisions to ensure their interests are protected (see Box 46 and Box 47).

6.21.1. Termination Due to Noncompliance

In the event the operator fails to comply with its obligations, a port authority will ordinarily have the option to terminate the agreement. Termination for cause is very serious, especially for financing parties, and should be avoided as much as reasonably possible. The operator should be given a reasonable period to demonstrate compliance with the terms of the agreement and resolve noncompliance events. However, an operator may be in financial distress, for example, and unable to pay the concession fee. In this case, the port authority may not directly terminate the agreement, but consider the seriousness and likely duration of the problem. If it is determined to be temporary, the port authority, perhaps in concert with the operator's lenders, may come to an understanding with the operator (for example, a deferred payment scheme) that avoids termination of the agreement (see Box 48).

6.21.2. Termination Compensation

As discussed above, every concession includes clauses on termination compensation, irrespective of the reason. The port authority or the operator may terminate the concession before expiration in the event that the other party is in material default of the agreement. Moreover, a concession may be terminated by mutual agreement after a

Box 46: Reference Clause on Termination by the Port Authority

The following (unless as a result of a Force Majeure or change in law that results in consequences set out in Article [number] or a default of the Port Authority) shall constitute Operator Events of Default:

- A material breach of a material provision of this Agreement by the Operator.
- Repudiation of this agreement by the Operator or the evidencing of the intention by the Operator not to be bound by the terms of this Agreement.
- Appointment of a provisional liquidator providing for winding up of the Operator, after notice to the Port Authority and due hearing, unless such appointment has been set aside within [number] days.
- The Operator is ordered to be wound up by a court or files a petition for voluntary winding up except for the purpose of amalgamation or reconstruction provided that the property, assets and undertakings of the Operator are transferred to its successor.
- The Operator abandons the construction or operation of the terminal/port and the facilities for a continuous period of [number] days.
- Persistent failure on the part of the Operator to operate and promote activities at the terminal/port and provide terminal users with services in accordance with good industry practice and in accordance with the provisions of this Agreement.
- Failure to pay the concession fee for a consecutive period of 6 months.
- Failure to comply with lawful directive given by a statutory authority connected with ports.

Source: Author.

force majeure event such as a tsunami or earthquake. In either case, the port authority is liable to pay a termination compensation to the operator since all fixed and movable assets of the terminal are transferred back to the authority. The main issue, however, is how to assess the value of the assets.

6.21.3. Option to Continue

Many concession agreements provide an option to extend the term of the concession. This feature

Box 47: Reference Clause on Termination by the Operator

The following (unless as a result of a Force Majeure or change in law that results in consequences set out in Article [number] or a Default of the Operator) shall constitute Authority Events of Default:

- Commission of a material breach of a material provision of this Agreement by the Port Authority.
- Repudiation of this Agreement by the Port Authority or the evidencing of the intention by the Operator not to be bound by the terms of this Agreement.
- Dissolution of the Port Authority and occurrence of any structural changes within the present constitution of the Authority that have a material adverse effect on the rights and obligations of the Operator under this Agreement, or the transfer of the Port Authority's undertaking and statutory powers or any material part thereof, unless such dissolution or structural change or transfer is in connection with privatization or other restructuring of all or any substantial part of the Port Authority, and the Port Authority's successor is able to perform the Port Authority's obligations under this Agreement.

Source: Author.

becomes more important in concessions with shorter terms. One may expect that concession agreements with a duration of 10 years or shorter will not generate significant investment. When there is an option to continue under balanced conditions, an operator might be tempted to take more investment risks. It is therefore in the interest of the port authority to include options to continue the agreement.

Generally, the port authority, when there is a mutually beneficial relationship between the parties, may favor extending an agreement under new conditions. Significant time and expertise may be lost if a new operator has to be found and terminal operations have to be restarted under new management. Judgments about agreement extensions depend on, among other things, the position of the port in the

Box 48: Reference Clauses on Termination Due to Noncompliance

Without prejudice to the conditions of Subsection [number], the Concession Agreement may be terminated by the Port Authority on the grounds of noncompliance by the Operator with one or more obligations under this Agreement. The Port Authority shall send a notice of termination to the Operator by registered mail, indicating the date of termination and the reasons thereof. There must be at least [number] of months between the day of sending the letter and the termination date.

If the Operator complies with the terms of this Agreement before the termination date, the decision of the Authority to terminate the Concession/lease shall become ineffective and shall be deemed not to have been taken.

If the Concession is terminated on the grounds of the provisions given in this Article, the Operator shall, as a result of the mere fact of the termination, forfeit a fine amounting to [number] times the sum of the annual Concession Fee owed by virtue of the provisions of Section [number], which applied most recently, and all rights of whatever nature to everything which is built on or placed in the site shall pass over to the Authority, without compensation for damages, and without prejudice to legal proceedings for compensation of damages.

Source: Author.

Box 49: Reference Clauses on Prolongation

At least two years before the expiration of the concession, the Operator may require the Port Authority to take a decision concerning the extension of the period for which the concession is granted, as well as concerning the concession fee and the provisions, which shall apply for the duration of its renewal or extension. The Operator shall approach this in the manner stipulated in the following paragraphs.

The Operator shall send a written request to the Port Authority by registered mail. The request shall indicate the number of years for which the extension is requested, with a maximum period of 10 years, and the proposed concession fee. The Port Authority will inform the Operator in writing of its decision and the reasons thereof within six months after receiving the request.

The request of the Operator shall expire if he has not reached agreement with the Port Authority with regard to the extension, the amount of the concession fee, and the provisions within three months after receiving a response mentioned in the previous subsection. In that case, the Operator has the option either to have the concession agreement expire or to revert to arbitration as mentioned in Section [number].

(optional) In determining the Concession Fee for the duration of the extension, no consideration shall be given to the value of the buildings or structures in the Concession Area constructed by the Operator.

Source: Author.

overall market and the alternatives available to the operator (see Box 49).

6.21.4. Bankruptcy

The port authority will usually insist on the right to terminate the agreement in case of the bankruptcy or insolvency of the operator. Sometimes an operator will be provided an opportunity to resolve such insolvency petitions within a limited period of time (see Box 50).

There are various methods, but in general the basic principle for assessing termination compensation is the fair value of all the assets brought into, created, or installed at the concession area, including:

Box 50: Reference Clauses on Bankruptcy

If the Operator is declared bankrupt, applies for a moratorium, or loses his status as a legal entity during the concession period, the Port Authority may summarily terminate the Concession Agreement.

In the event that more than one legal entity acts as Operator, each of them shall be separately liable for fulfilling all obligations arising from this Agreement.

Source: Author.

- The movable assets and facilities transferred to the operator (whether renewed or replaced).
- All other movable assets, (including intangible assets such as software and terminal management systems, subject to the terms on which they have been licensed, whether renewed or replaced, whether fixed or attached to the ground, created, installed, or provided by the operator at the terminals, including at the extension works.
- All related documentation and manuals (such as the maintenance manuals, operation and management manuals, and so forth).
- All quays and storage infrastructure that have been created or brought into the concession area and all other operational port infrastructure and superstructure created and constructed at the terminal.

The fair value is usually determined by an independent appraiser who acts as an expert, not as an arbitrator, and should have the power to obtain relevant information from the parties to make an independent assessment. In no circumstances shall the appraiser apply any earnings-based valuation methodology, or take into account any goodwill in the business of the operator for determining the fair value of the assets at the concession area. The fair value would normally be subject to addition or deduction depending on which party was in default.

There are many methodologies for determining fair value. Examples include the basis of book value of the assets minus depreciation or replacement value or using the going concern method of calculating lost future cash flow of the entity. Obviously, the contractual clauses on fair value are an important issue for negotiation between the port authority and the prospective operator when concluding a concession agreement. The methodology of determining fair market value should be agreed on and included in the concession agreement.

6.22. *Expiration of Concession*

Upon expiration of the concession period, the facilities built on the site and any title that passed to the operator as part of a B(O)OT arrangement will be transferred back to the port authority. In some contracts, the site may have to be restored to its original state, which could mean that the operator must demolish structures and installations that were built on the site during the concession period. Equipment would be transferred or retained as a matter of contractual obligations; it may be compensated at book or market value, or it might be removed from the site by the operator for sale or for use elsewhere. An obligatory free transfer of equipment to the port authority is not recommended due to the maintenance requirements for such equipment. If an operator knows that it may have to transfer equipment at the end of the concession period, the operator may cut back on maintenance as much as possible to save money toward the end of the period.

The concession agreement should specify the condition of the basic and operational infrastructure at the time of transfer. The port authority should monitor thoroughly the infrastructure maintenance (life cycle maintenance, routine maintenance, and reactive maintenance), and, if applicable, the superstructure throughout the concession period. Any deficiencies found during the joint inspection prior to hand-back should be corrected by the operator.

The authority should expect to receive all construction documentation for installations, power and water lines, sewerage systems, and any other systems that have been constructed underground at the site during the concession period. The operator should also remove all remnants of piles, foundations, and similar civil works before leaving the site. When the site is to be handed over in its “original condition,” all later restoration costs should be borne by the operator (see Box 51).

6.23. *Arbitration*

Many concession agreements include a provision for arbitration. Sometimes, reference is made to International Chamber of Commerce

Box 51: Reference Clauses on Expiration of Concession

Not less than [number] months prior to the date of expiration of this agreement, the Port Authority and the Operator shall conduct a joint inspection of the facilities. Such inspection shall be in accordance with the requirements of the hand-back scheme included in Annex [number].

The Operator shall ensure that on the date of expiration of the Agreement, each element of the facilities complies with the requirements of the hand-back scheme included in Annex [number].

The Operator shall at the expiration of the lease period peacefully and quietly leave, surrender, and yield up the site to the Port Authority or to its agents without any claim for compensation in respect to any improvement effected by the Operator on the site and shall before leaving, demolish, at the request of the Port Authority, some or all buildings constructed by the Operator and remove any equipment, machinery, or appliances installed therein, which otherwise will be vested in the Port Authority without compensation. Moreover, other items have to be removed such as stumps of piles, piles, foundations, materials, substances, and the like.

The scope of the hand-back of assets shall include all assets prevailing at the site as at the date of transfer, and shall, inter alia, include:

- All land and buildings.
- Plant and machinery.
- Spare parts.
- Such deeds and documents as may be necessary for effectively transferring rights, title, and other interests under this Agreement in favor of the Port Authority free of all encumbrances.
- The benefits of all rights and interest in all unexpired insurance, guarantees, and contractor warranties, if so desired by the Port Authority.

- All documents, manuals, records, and so forth as may be required for the efficient operation of the terminal/port.

The hand-back (and compensation) shall relate only to tangible assets and such intangibles (such as capital dredging) identified for the purpose of the Article in the Approved DPR.

If there are piles in the site that have been placed there by the Operator and/or by other parties, the Operator shall submit a full and clearly specified drawing thereof to the Authority. The Authority shall decide how these piles should be removed and to which depth. The Operator shall strictly comply with the instructions that are given by the Port Authority. The Port Authority is entitled thereby to prescribe that one or more piles are left behind in a good condition, without the Operator being able to claim any form of compensation for the piles that will be left behind.

In the absence of clearance within three months after the end of the lease period the fences, buildings, mooring sites, installations, and in general everything that is still situated on or in the site, shall revert to the Authority.

If the site is not handed over in its original condition, after removal of everything that has been built thereon, placed therein, or brought thereto by the Operator and/or his predecessor(s) and leveled at the proper height, all costs that the Authority will incur in order to restore the site to its original condition shall be refunded by the Operator.

(optional) The Operator shall, at the expiration of the lease period, sell back to the Authority the existing quay walls and all other new mooring facilities constructed during the Concession Period. In the event that parties cannot agree on a price, the price will be determined by an Arbitration Commission appointed in the manner given in Section [number].

Source: Author.

(ICC) arbitration (which is the preference of most lenders) or to a local arbitration institute. Often, a specific procedure is presented in the agreement. Arbitration is often a preferred option in case of a conflict between parties. The reference clauses in Box 52 are meant for deciding on increases of the concession fee, if parties

cannot come to an agreement. This type of arbitration can also be applied to other conflicts that may arise during the concession period.

6.24. Costs

Costs pertaining to the use of the concessioned site are usually paid by the operator, including

Box 52: Reference Clause on Arbitration

In the event that the parties do not reach agreement on a new concession fee before the new period commences, the fee shall be determined by the parties in the manner given below on the basis of the advice of an Arbitration Commission consisting of three arbitrators.

In that event, the Port Authority and the Operator shall appoint one arbitrator, and the two arbitrators thus appointed shall appoint the third arbitrator; if a party fails to appoint the arbitrator within [number] days of receipt of a request to do so from the other party, or if the two arbitrators fail to agree on the third arbitrator within [number] days of their appointment, the appointment shall be made, upon application of a party, by the [name] Court. The arbitrators shall be notified of the provisions of this agreement, to the extent that these are important for them, by the parties who appoint them. By accepting his appointment, an expert subjects himself to the aforesaid condition.

The third arbitrator will act as Chairman of the Arbitration Commission. The Arbitration Commission shall, together with a well-motivated statement of their considerations and arguments, give its decision as to the extent to which the Concession Fee must be reviewed in relation to the Fee, which was charged during the last year of the concession period.

In doing so, the Commission shall compare:

- The situation and the condition of the area with that of the other port areas, without taking into account the nature of the use or the fact that they are built on.
- The conditions under which Concession Agreement(s) concluded with other parties in the port area.

- Special circumstances under which the Concession Agreement has been concluded with those of other parties in the port area.
- In the event that within the last two years prior to the end of the concession period no other sites have been issued in concession within the area of the Port Authority, the Commission shall decide on the adjustment of the Concession Fee under observance of:
 - ~ The situation and the condition of the site.
 - ~ The conditions under which the site was concessioned.
 - ~ The special circumstances under which the site was concessioned.
 - ~ The increase or decrease of the user value of the site concerned as a result of external circumstances.
 - ~ The increase or decrease of the value of money.

If all three experts, or two of them, agree on a new Concession Fee, the Commission shall inform parties in accordance therewith in writing. If all three differ in opinion, then the new fee shall be established by the Commission at half of the total of the two estimates, which have the smallest difference between them. If the difference between the lowest and the middle estimate is the same as the difference between the middle and the highest estimate, then the fee shall be established by the Commission in accordance with the middle estimate.

A change in the fee by virtue of the provisions in this article shall, if one of the parties expresses the desire thereto, be laid down in a separate deed.

Source: Author.

the case in which the port authority holds legal title over the port land (see Box 53).

6.25. The Tender Process and Transaction Preparation

Under a concession, the long-term use and exploitation of port land and assets are transferred to private parties through tender. The process to achieve this transfer in an optimal manner has to be both effective and transparent. This requires taking a sequence of steps

that are logically interrelated and lead to concessioning of terminal activities under the best possible conditions for the government and port authority. The steps are explained below.

Marketing strategy: The first step is to ensure that a company profile reaches a reasonable number of relevant bidders (“reasonable” referring to both creating sufficient competition and avoiding large costs). The company profile comprises the most relevant information on such

Box 53: Reference Clause on Costs

Where this Agreement determines that costs, damages, taxes, and other levies by public bodies and the like are for the account of the Operator, the latter shall pay the amount stated by or on behalf of the Port Authority and shall at the same time state the reason for the payment, immediately upon the first request, without awaiting notice in default or court intervention.

All costs incurred for this Agreement and supplementary agreements shall be for the account of the Operator.

Source: Author.

issues as core activities of the offered prospect and future perspective of these activities. At the same time, the financial, operational, strategic, and other contributions expected from the bidders are specified (prequalification criteria). Further, the profile refers to the existence of an information memorandum that is available to parties that are interested in making a serious bid and are able to comply with selection criteria to qualify for negotiations. The information memorandum should include strategic, economic, and financial information on the relevant port or terminal, the main provisions of the concession agreement to give prospective bidders information on the institutional and legal background of the port sector, as well as the selection criteria.

Selection (prequalification): Reactions to the profile are screened in accordance with the prequalification criteria. The obtained “long list” will then be put to a further test and probably narrowed down to a “short list,” to ensure that only serious bidders submit proposals.

Interfacing: The short listing process, with its submission of concise information to a long list of bidders, and the need felt by the latter group to know more, will almost certainly invoke interactions between prospective bidders and stakeholders in the government or port authority. This may result in a bidders conference (pretender meeting), workshops, road shows, investor tours, one-on-one meetings, or similar events.

Managing the transaction to its conclusion

(bidding stage): After short listing, the candidates are obliged to carefully review the information memorandum, which shall contain information on an array of issues. These issues are listed in the relevant task sheet. The information memorandum will then be sent to those requesting it and prequalifying. They are invited to respond to it in a prescribed standard manner. Standardizing the bids ensures rational comparison, scoring, and ranking, and also makes the whole process transparent and defensible.

After the bids have been submitted, comparing, scoring, and ranking sessions should be held under the advisory guidance of a professional port consultant. At this stage, bid standardization achieved by the identical information memoranda sent to the bidders will prove to be crucial to finalizing the selection process in a transparent and effective manner, leading to best results for the port authority. The selection process includes several phases:

- *Formation of an evaluation team*: This team might comprise representatives of several relevant ministries and the port authority. The evaluation team should be assisted by a professional port consultant.
- *Arranging the evaluation session*: Experience suggests that a thorough evaluation session of the bids will take at least two weeks, depending on the number of eligible bids received. The bidding envelopes should be opened in the presence of the press and their contents verified. The documents should then be copied and distributed.
- *Evaluating the bid*: First step in the scoring process is to design a bid evaluation chart. On the chart, an unambiguous list of evaluation criteria and a scoring range will be drawn up, later to be used by the evaluation team during the scoring process. Most importantly, scoring criteria will have to be agreed-on to sort the bidding information of the various bids into categories. For each of the categories,

and the subcategories derived from them, a predetermined number of points or a fraction thereof can be awarded, depending on whether or not and to what degree the criteria have been met.

- *Scoring process:* The scoring process itself will consist of filling in one bid evaluation chart per evaluation team member per bidder. These individual results will then be grouped on a bid evaluation results list, showing how many points the evaluation team as a whole has awarded to each bidder per category, per subcategory, and as a grand total. The ranking of the bidders will automatically emerge from this exercise.

Negotiations (political approval and contracting): Since concession agreements are usually very complicated, particularly when a BOT arrangement is included, the port authority's negotiation team should be professional and fully authorized to conduct the negotiations and be assisted by an (external) international port lawyer. In the event that many government departments are involved, it is advised to agree on a mandate for the negotiation team (negotiation guidelines), including the (minimum) position on important issues that constitute the main part of the concession. These issues usually are:

- Lease rent and TEU fee, minimum guaranteed throughput, and indexation.
- Term of the concession.
- Termination compensation (establishment of fair value).
- Lender security and lender's direct agreement.
- Liabilities.
- Transfer of port workers in case of the concessioning of an existing terminal.
- Construction program, milestone achievement dates, and milestone sunset dates in the case of a BOT arrangement.

In practice, negotiations may take a long time, ranging from one month to one year.

6.26. Miscellaneous Conditions

The concession agreement may contain provisions to cover a number of miscellaneous conditions and activities in the port, including environmental conditions, construction and maintenance of a fence around the site, advertisements, and dumping of liquids in port waters (see Box 54).

7. BOTS AND CONSTRUCTION

An operator managing a site under a concession or lease agreement usually obtains the right to reconstruct the site, to erect buildings, and introduce new equipment. When the site is constructed or reconstructed under a BOT arrangement, the operator also has the right to build new quay walls, to dredge channels, and create new port land. In undertaking these activities, the operator assumes some duties previously undertaken by the port authority.

Every concession agreement contains lease conditions when ownership of the site formally remains

Box 54: Clauses on Miscellaneous Conditions

If, when carrying on businesses or when building, expanding, or changing constructions and/or installations, an environmental license or another license is required, not only this (these) license(s), but also a separate permission from the Authority shall be required by virtue of this article.

The Operator shall have to fence off the site to the satisfaction of the Authority and keep it fenced off from the public road and from the adjoining land at all times.

The partitions, buildings, mooring sites, and/or installations may only bear advertising, legends, announcements, signs, and the like relating to the business of the Operator, and also those that are prescribed by or on behalf of the government. All other advertising and the like, including that which is put up against the will of the Operator, shall be removed immediately by the Operator.

With the exception of rainwater, dumping of solid substances and liquids into the port is not allowed unless the Authority has given permission in writing to do so. This permission may include conditions.

Source: Author.

with the port authority. When ownership is temporary or definitively transferred to the operator (under BOOT or BOO arrangements), the concession agreement may include a variety of clauses pertaining to the use of the site, although such clauses may be based solely on a public license, a port bylaw, or other enabling authority.

BOT arrangements in a concession agreement are spelled out in detailed provisions covering construction, quality control, time schedules, milestones, and similar issues. One important

provision deals with the granting of exclusivity rights, guaranteeing that the port authority does not promote or permit any other competing facility in the concessionaire's port area for a certain time period (sometimes incorporated into a sponsors direct agreement) (see Box 55).

7.2. BOT and BTO Arrangements

BOT and BTO arrangements are frequently integral parts of concession agreements. The difference between these models is the time at which

Box 55: Reference Clauses on Construction and Maintenance (Landlord Port Situation)

The maintenance of the site at its present level shall be carried out by and for the account of the Operator.

The maintenance, the repair, and the renovation of the foundations and piles of the quay wall, the electricity channel with brush contact groove, and the connection pits for light, water, and telephone supply and appurtenances thereto, and also of the visible concrete works of the quay wall, shall be carried out by and for the account of the Port Authority.

The Operator is obliged to maintain the buildings, installations, fences, roadways, mooring sites on the site in a proper manner and, if necessary, to renew them in due time. Buildings that are run down and no longer used for business operations shall be demolished. All this shall be done to the satisfaction of the Port Authority.

All costs for the construction and maintenance of roads, sewers, electricity lines, gas and water pipes, and lighting on the site are for the account of the Operator.

If objects, liquids, or materials are present in the water, or in or on the bottom of the port or in the vicinity of the site, which, in the opinion of the Authority, do not belong there and have originated from the site or from vessels moored alongside a quay wall owned by the Operator, the Operator shall pay the Port Authority the costs that arise from the removal thereof, unless the Operator proves that the objects, liquids, or materials originate from another source.

The Operator shall indemnify the Port Authority for all claims of third parties in respect of damages that arise from the presence of the said objects, liquids, or materials, to the extent that they do not originate from a source other than is referred to above. This indemnification does not

apply to objects, liquids, or materials that originate from vessels moored alongside a quay wall owned by the Operator, which are owned by, or carrying out services on behalf of the Authority.

The Operator shall further be obliged to take such measures as shall be necessary in the opinion of the Port Authority to enable dredging and placing and removing any mooring posts and the like in the vicinity of the leased property, which entails, among other things, the fact that the Operator shall allow means of anchoring, mooring, and dredging vessels to be installed, used, and maintained by or on behalf of the Port Authority in the shore strip of the site, this at places which shall be indicated by or on behalf of the Port Authority.

For that purpose the Operator shall, at his own expense, carry out such work to its fences, buildings, mooring sites, installations, and the like as shall be deemed necessary in joint consultation with the Port Authority in order to avoid damages that could arise from the work or provisions which are to be carried out by or on behalf of the Port Authority. If, as a result of work or provisions carried out by the Port Authority, damage is inflicted to fences, buildings, mooring sites, installations, and the like of the Operator, such damage shall still be for the account of the Operator, unless the Port Authority can be held responsible for gross fault or negligence.

Without prejudice to other provisions in this agreement, the Operator shall contribute to the costs, to be borne by the Port Authority, of cleaning the surface water in the harbors and above the sloping embankments in proportion to the area of the sites bordering the harbor, and the length of the waterfront.

Source: Author.

the operator transfers the newly constructed assets to the port authority. BTOs are employed when relevant legislation does not allow for the private ownership of port assets. Transfer is conducted immediately upon the completion of construction and the operator receives the equivalent of a management contract.

The distinguishing feature of the BOT arrangement is the legal form of user rights. The concession agreement always sets out clauses that clearly define such rights. The concession entitles the operator to a right to use and exploit port infrastructure and, in the case of an existing terminal, also to use the superstructure and available port equipment.

The scope of the concession agreement appears in its preamble. The preamble typically consists of three main elements:

- The right to construct new port infrastructure and superstructure.
- The right to use of the subject assets.
- The right to exploit the site during the tenure of the concession (see Box 56).

Most concessions have a term of 30 years or more. Extension of the concession can usually be renegotiated at any time during its lifetime in case the operator plans a major investment in the port's infrastructure in return for an adjusted tariff rate reflecting changes that may have been introduced pursuant to the extension. In case no agreement for extension is reached by the end of the 30-year term, the concession ends and the right to use and exploit the port's infrastructure and other assets reverts to the port authority (or another government agency), preferably under a fixed-price formula.

7.2. BOOT Arrangements

Under a BOOT scheme, sometimes an operator is allowed to own the site on which improvements are to be constructed until the end of the concession period. Usually, the concession agreement specifies the value of the assets under a predefined formula (including an agreed-on depreciation table). At the time of transfer to

the port authority at the end of the concession period, the port authority pays the operator in accordance with the residual value, calculated on the basis of the established formula.

7.3. Functional and Technical Design under a BOT Arrangement

Generally, a port authority presents functional specifications for the facility to be constructed under a BOT arrangement. When the authority specifies detailed construction works, it becomes vulnerable to delays, construction errors, and, perhaps, the application of wrong technology or processes relative to expected port functions. Many ports simply lack the required expertise to prepare detailed technical specifications for modern port construction works.

Since new facilities are to be transferred to the port authority in due time, it is useful to engage a technical consultant who represents the port authority and reports on the progress of the work. The technical consultant can also observe the way in which the project is being constructed to meet the functional specifications and the requirement to use best practices for design, materials, and workmanship. The consultant may also assist in evaluating alternative technical solutions and advise on the best technical and cost-effective solutions.

A crucial point in the design phase is obtaining agreement on a timetable for completion of the detailed technical design. The design should include an interface element to integrate the terminal into an existing port area. The interface element takes into consideration paving levels, drainage, fencing, design and routing of underground facilities, reconstruction of existing infrastructure within the concession area, and access through neighboring port areas and terminals.

Finally, the operator is obliged to provide the port authority with sufficient detailed benchmark data to allow for evaluating and monitoring the development of the concession area as part of the approved DPR and the agreed-on construction program (see Box 57).

Box 56: Reference Clauses on Scope of a Concession Agreement (including a BOT arrangement)

WHEREAS Article [number] of the Ports Act of [date] gives the port authority of [name] the exclusive right to develop, construct, and maintain basic and operational infrastructure in its port area.

WHEREAS it is the policy of the government/Port Authority to have the new terminal constructed and operated by a commercial operator (or have the existing terminal known as [name] be reconstructed and operated by a commercial operator) under a [BOT, BOOT, BTO] arrangement.

WHEREAS the Authority has invited bids in [month] [year] for the Project, and through a process of competitive bidding selected in [month] [year] the Consortium of [name] as Sponsors, hereinafter referred to as the “Operator,” led by [name], a company whose registered office is at [location], (the “Lead Sponsor”), as identified in the Joint Development Agreement for developing the terminal/port of [name].

WHEREAS, subject to the provisions of this Agreement, the Sponsors and its designated Operator shall have the right and the obligation to finance, design, construct, equip, test, commission, operate, and maintain the terminal/port known as [name].

WHEREAS the Authority awarded a Letter of Intent (LOI) dated [date], [year], to the Sponsors to finance, design, construct, equip, test, commission, operate, and maintain the terminal/port [name] on [BOT, BOOT, BTO, and so forth] basis, (and has agreed to grant a license to the Sponsors under the [name] Act, No. [number], dated [date], for financing, designing, constructing, equipping, testing, commissioning, operating, and maintaining the terminal/port [name]).

(optional) WHEREAS the Authority has been reimbursed by the Sponsors for the cost associated with site specific technical studies that were undertaken by the Authority [at the time of approval of the Detailed Project Report] [at the time of International Competitive Bidding].

WHEREAS the Sponsors have executed a Joint Development Agreement dated [date], [year], allocating project responsibilities among Sponsors, pursuant to which the Sponsors promoted the Operator to finance, design, construct, equip, test, commission, operate, and maintain the terminal/port [name] on [BOT, BOOT, BTO, and so forth] basis and transfer

the Site and the assets thereon to the Authority on termination of the Concession Agreement.

WHEREAS a Detailed Project Report (DPR) has been prepared and submitted by the Operator, in accordance with the terms of the LOI, to the Authority on [date], [year], and has been approved by the Authority. The DPR with such modifications shall be referred to as the Approved DPR (annexed hereto as Annex [number]), and shall be treated as a part of this Agreement.

WHEREAS the Concession Area required for the development of the terminal/port [name] and the minimum area of land required to be leased to the Operator for the commencement of the construction have been identified in the Approved DPR. The Operator has agreed to construct the Contracted Assets on the Site in accordance with Annex [number] of the approved DPR.

WHEREAS on the signing of the LOI, the Operator provided a Development Guarantee in favor of the Authority for \$ [amount], which unless otherwise agreed to, shall remain in force and effect until the Zero Date.

WHEREAS at the signing of the LOI, the Sponsors provided a Development Guarantee in favor of the Authority for \$ [amount], which unless otherwise agreed, to shall remain in force and effect until the Zero Date.

WHEREAS the parties hereto have agreed to render all necessary cooperation and assistance and take appropriate action for giving effect to the terms of this Concession Agreement.

WHEREAS the Operator, being duly licensed to operate in the port, has applied for appointment to start container/general cargo/bulk services at the above mentioned terminal on the Date of Commencement of Operations.

WHEREAS the Authority is satisfied that the Operator is qualified in this field.

WHEREAS the Authority grants the Operator the right of usufruct[BCJ11]^a over operational infrastructure, superstructure, and other assets by way of this Concession for the period of (30) years.

Source: Author.

^aA legal term describing a situation wherein a person or company has a temporary right to use and derive income from someone else's property.

Box 57: Reference Clauses on Construction Program

The Construction Program is set out in Schedule [Number] in detail for all phases of the Extension Works. These phases comprise the following:

- *Phase 1* comprises the upgrading of the current Operational Infrastructure and Facilities as to enable the Operator to handle an Annual Throughput of [Number] million TEU.
- *Phase 2* comprises the construction of an additional quay structure with a total length of [number] meters and the construction of Operational Infrastructure and Facilities as to enable the Operator to handle an Annual Throughput of [number] million TEU.
- *Phase 3* comprises the construction of Operational Infrastructure and Facilities as to enable the Operator to handle an Annual Throughput of [Number] million TEU.

Subject to Article [number] and [number], the Operator shall ensure that the Extension Works are carried out:

- According to the Construction Program, subject to compliance by the Port Authority with the Dredging Program.
- So that the Milestone Achievement Date for each Milestone shall occur by the relevant Milestone Sunset Date.

The Construction Program may not be materially varied without prior approval of the Port Authority such approval not unreasonably withheld, provided always that the Operator shall provide the Port Authority with evidence

reasonably satisfactory to the Port Authority that the Milestone Sunset Dates shall still be achieved and any such approval shall be without prejudice to the rights of the Port Authority to terminate this Agreement for failure to achieve the Milestone Sunset Date.

If the actual progress of the Extension Works does not comply with the Construction Program, then the Port Authority shall be entitled to require the Operator either:

- To submit to the government a report identifying the reasons for the delay.
- To prepare and submit to the government its proposals for a revised Construction Program, showing the manner in which the Extension Works shall be carried out to ensure each Milestone Achievement Date shall be achieved by the relevant Milestone Sunset Date.

The government shall give written notice to the Operator from time to time giving details of the person appointed from time to time by the government to be the Construction Observer.

The Construction Observer shall at all times have the right to visit the Concession Area without prior notice. The Operator shall have the right to accompany the Construction Observer during his attendance in the Concession Area. The Construction Observer shall have no authority to delay or hinder any work taking place in the Concession Area.

Source: Author.

7.4. Design and Construction Flaws

During every major construction job, design and technical problems will inevitably occur. Some of these issues can be easily resolved, but others might influence the construction timetable or quality of the work. It is important that design and construction flaws be resolved in good faith consultation with the operator and its construction firm. The port authority should be ready to demonstrate flexibility without compromising the requirement that work be performed at a predetermined quality level.

In some instances, part of the work may have to be redesigned. The effects on construction

time and cost of any redesigned element(s) should be ascertained by the port authority, which should also ensure that the operator adheres to overall functional specifications (see Box 58 and Box 59).

7.5. Building Conditions

The construction company carrying out the work on behalf of the operator should be required in most cases to inspect the building site and the adjacent water area thoroughly before starting construction. Any obstacles in the subsoil affecting the construction should be reported and taken into consideration when executing the technical designs and obtaining permits. It is customary for the port authority

Box 58: Reference Clauses on Infrastructure Design

The Operator shall design and construct the terminal/port facilities in accordance with the functional design set out in Annex [number] to this Agreement.

Without affecting the obligations under the preceding provision, the Operator shall comply with the design and construction methods set out in Annex [number] to this Agreement.

The Operator represents, warrants, and undertakes that:

- The technical design solution satisfies the functional design.
- Each item of the facilities (quay wall, terminal area, superstructure, and other assets) will be fit for its respective purposes.

The Operator shall complete the detailed technical design of the facilities so as to comply with the Construction Program as set out in the time table for design completion (Annex [number]).

The Operator shall submit to the Authority all interface design data, including all calculations, designs, design information, specifications, plans, programs, computer software, drawings, graphs, sketches, models, and samples.

If in the opinion of the Authority any interface design data does not comply with the requirements of the Agreement, it shall be entitled to require the Operator to amend the relevant interface design data so as to comply with these requirements.

The Authority shall be entitled to monitor the development and other aspects of the technical design and the Operator shall provide it with all relevant data promptly. The Operator shall not be obliged to adhere to possible comments of the Authority, but shall give due consideration to such comments made by or on behalf of the Authority. Any comment or approval of the Authority shall not be construed as transfer of responsibility for compliance with the Functional Design from the Operator Company to the Authority.

Source: Author.

to agree to provide its cooperation in obtaining construction permits and approvals from governmental authorities, including environmental oversight authorities.

Box 59: Reference Clauses on Technical Design and Construction Problems

If the Operator and/or the construction firm responsible for carrying out the work become aware of any failure to comply with the Functional Design and/or other provisions concerning design and construction of the facilities, they shall:

- Immediately notify the Authority of the situation and provide details of the problem.
- As soon as possible provide the Authority with a written statement giving a full statement for the reasons of the problem.
- Describe in full the measures taken or to be taken to cure the problem and/or to mitigate the consequences.
- Assess the effect(s) of the problem on the Construction Program.

In case the Operator is not able to comply with the Functional Design and/or the provisions concerning the technical design and construction of the facilities, a full statement of the proposed changes including cost estimates and effects on the Construction Program shall be submitted to the Authority.

Source: Author.

7.6. Construction Program

Construction is based on a construction program that outlines completion dates for the various construction phases (milestones) as part of the approved DPR. This DPR is almost always incorporated into the concession agreement. The port authority ordinarily requires that it be notified promptly of every delay that occurs at the construction site, as well as the resulting contingency plan devised to remedy the delay (see Boxes 60 and 61).

7.7. Zero Date

The zero date is an important event that marks the start of construction work. By this date, all conditions precedent are fulfilled by both the port authority and the operator. Generally, the port authority fulfills all conditions necessary for the operator to commence work, while the operator concludes all financial arrangements and engages a construction firm to begin construction (see Box 62).

Box 60: Reference Clauses on Site Conditions

The Operator shall be deemed to have thoroughly inspected the Concession Area and its surroundings, and have satisfied itself as to:

- The nature and extent of the conditions of or affecting the Concession Area, including climatic, hydrological, ecological, environmental, geotechnical, seismic, and archeological conditions.
- The adequacy of the rights of access and egress to and from the Concession Area.
- The possibility of interference by persons of any description whatsoever (other than the Authority) with access to, use of, or rights concerning the Concession Area and its surroundings, including adjacent landowners.
- The precautions, times, and work methods necessary to prevent any nuisance or interference, whether public or private, being caused by persons whose interests may be affected by the performance of the Operator's/Vehicle Company's obligations under this Agreement.

Source: Author.

Box 61: Reference Clauses on Construction

Throughout the period from the effective date of this Agreement until the actual commissioning date for the last of the planned facilities, the Operator shall keep the Authority fully informed about the progress of the works. In that regard, the operator shall:

- Provide the Authority with monthly progress reports, in such form and containing such information as the Authority may reasonably require from time to time.
- Hold regular progress meetings to review performance of the work and discuss any coordination issues.
- Fully cooperate with the Authority's Observer, who shall be entitled to be present at any time during the performance of the work and to have reasonable access to all parts of the concession area and to all records and materials of the Operator concerning the work including attendance at the progress meetings of the work. The Observer shall be entitled to disclose all such information to the Authority and its advisers.

Source: Author.

7.8. Drop Dead Date

During the preparation phase, events may occur that result in delays or even cancellation of a project. The port authority as well as the operator may include provisions for termination of the concession agreement once it becomes clear that the project will fail. Therefore, a drop dead date is included in the agreement. In drafting such a clause, it is important to specify if any performance guarantees will be drawn or canceled as a result of the drop dead date (see Box 63).

7.9. Extension Events

In practice, construction of a major work rarely proceeds according to the original plan. In case a delay is caused by action (or inaction) of the port authority itself, the operator is usually entitled to claim liquidated damages. A force majeure might also occur, causing delays in the construction process. Such possibilities are acknowledged in the concession agreement and procedures included to change the milestone

dates and compensation paid by the operator when an extension event occurs (see Box 64).

7.10. Completion Tests and Take-Over

BOT schemes are mainly employed for the construction of new port infrastructure and superstructure. When newly built facilities are completed, completion tests are carried out and a take-over certificate issued by a competent expert or authority on the port authority's behalf. While verification of the civil works is required throughout the production process, it will not be possible to verify solely at the conclusion whether all work was completed in a professional manner and that proper materials were used during the process. The port authority should use its expert to inspect all work at completion and to prepare a punch list of deficiencies. The construction company then has a certain period to rectify all deficiencies. The final take-over is based on a test certificate

Box 62: Reference Clauses on Zero Date

The Zero Date shall mean the date on which all the conditions precedent set out in Article [number] have been satisfied and the following conditions have been fulfilled:

- The environmental permit of the Ministry of [name] has been received.
- The following milestones necessary for the commencement of construction stated in the Approved DPR are complete: [milestones to be identified].
- Financial Closing has been achieved.

The Zero Date shall be achieved within [number] months from the Effective Date (namely, signing of this Agreement).

Source: Author.

issued by the certifier. After this, there is still a defect liability period during which the operator has the obligation to repair all deficiencies.

Take-overs of mechanical and electrical installations are more complicated and require a variety of tests including operational, safety, relia-

Box 63: Reference Clauses on Drop Dead Date

In the event Zero Date is not achieved within [number] months from the Effective Date, this Agreement shall stand terminated and the parties to the Agreement shall have no liability of any nature whatsoever, subject to the clauses below.

If Zero Date is not achieved on account of failure to achieve Financial Closing, the Development Guarantee may be invoked by the Authority.

In the event the Authority has not fulfilled the covenant set forth in Article [number] within a period of [number] months after completion of inspection of facilities as per Article [number], the Operator shall be entitled to terminate this Agreement in accordance with Article [number] and the Development Guarantee shall stand discharged and shall be returned to the Operator.

Source: Author.

Box 64: Reference Clauses on Extension Events

In the event that the Operator fails to:

- Complete construction (or cause construction to be completed) within the scheduled construction period.
- Achieve any intermediary milestones as may have been agreed to between the parties, subject in both cases to agreed extension.

The Operator shall pay the authority liquidated damages of \$ [amount] for each day of delay up to a maximum period of [number] months. The amount of such liquidated damages will be linked to the Concession Fee payable by the Operator to the Authority based on an annual cargo projection in the Approved DPR, and shall, if so required, be realized by invoking the Construction Guarantee.

Source: Author.

Box 65: Reference Clause on Take-Over Tests

An actual commissioning date shall occur when the “Test Certifier” issues a certificate that completion tests for civil works and installations (if any) have been successfully carried out.

Source: Author.

bility, interoperability, and endurance tests (see Box 65).

7.11. Hand-Back and Transfer of Facilities

Under a BOT arrangement, the facilities are transferred to the port authority at the end of the concession period, usually with (under a BOOT arrangement) or without (under a common BOT arrangement) compensation. The hand-back is concluded after a joint inspection and assessment of any renovation works (if applicable). Hand-back requirements and procedures depend on local practices. The most sensitive issue is in the level of compensation to be paid by the port authority (see Box 66).

Box 66: Reference Clauses on Hand-Back of Facilities

[Number] months prior to the expected date of expiry of this Agreement the Hand-Back Expert shall conduct an inspection of all elements of the Terminals including the Extension Works (the “Initial Inspection”). Such inspection shall comply with the requirements set out in the Hand-Back Requirements applicable to the respective elements of the Terminals.

Within [number] Business Days after the completion of the Initial Inspection, the Hand-Back Expert shall provide the Operator and the Port Authority with a notice (the “Hand-Back Proposals”) setting out:

- A schedule of major dilapidations on the condition of the Terminals including the Extension Works, normal wear and tear excepted.
- Determination as to the maintenance works or repair required to be carried out in respect of the Terminals including the Extension Works, in order to procure that, on expiry of the Term of the Concession, the Terminals including the Extension Works shall comply with the Hand-Back Requirements (the “Renewal Works”).
- Determination as to the Program (the “Renewal Construction Program”) for carrying out the Renewal Works over the remainder of the Term of the Concession.
- Determination as to the cost of carrying out the Renewal Works (the “Renewal Amount”).
- The Operator shall ensure that the Renewal Works are carried out in accordance with the Renewal Construction Program.

On the day on which this Agreement expires, the Hand-Back Expert shall conduct a further inspection of the Terminals including the Extension Works (the Expiry Date Inspection). The inspection shall comply with the requirements set out in Schedule [number] applicable to the relevant element of the Terminals including the Extension Works.

Source: Author.

7.12. Lender Security

The success of BOT arrangements is highly dependent on the ability of the operator to

attract financing for the construction work. This issue is reviewed in greater detail in Module 3 and Module 5. In many cases, lenders have recourse only to certain assets or income streams to secure repayment of their loans. Sometimes there are legal considerations that should be addressed, particularly with respect to the creation and enforcement of security interests in the host country that limit or even prohibit the granting of a lien over port assets. Such limitations present a significant stumbling block for attracting private capital to port development.

As described in Box 67, legislation restrictions may also impede investors and lenders because of a lack of definition of property rights. The situation on St. Maarten is very different. As noted in Box 68, care has been taken to maximize the lender’s security.

In a concession contract with BOT arrangements, it is generally necessary to explicitly establish the lender’s rights with respect to the affected assets. Providing for the lender’s rights entirely in the concession agreement is difficult because of the variety of financial structure options available to operators. Most BOT arrangements require debt financing by lenders (commercial banks). To facilitate the lending process, the port authority may enter into a direct agreement with the lenders; however, only one direct agreement shall be effective at any time. In such a case, the concession includes a clause obliging the port authority to negotiate in good faith during the period commencing on the date of concession and the effective date regarding the terms of the direct agreement as may be reasonably required by the lenders in connection with the debt financing, including terms to enable the lenders to exercise their rights and remedies under the financing documents (see Box 69).

7.13. Change in Law

Operators under a BOT arrangement run a considerable risk of applicable legislation changing during the concession period. Such change may affect operating profits and alter or negate the original exploitation conditions.

Box 67: A Case of Legal Limitations Adversely Affecting a Port Concession

The main elements of recent ports legislation in a European country included the following:

- Ports are part of the maritime domain as mentioned in Article 49 of the Maritime Code (MC) of the country. According to the same law, a main characteristic of the maritime domain is that within this domain there are no property or proprietary rights whatsoever (Article 51 MC). In the law, the definition of a port is as follows (Article 5 MC): A port is a water area, and with water directly connected to a land area with built-up and non-built-up wharf structures, breakwaters, equipment, installations, and other facilities intended or designed for berthing, mooring, and sheltering sea-going ships; loading and discharging of materials; embarkation and disembarkation of materials and passengers; warehousing and other cargo handling operations; production, refinement, and processing of goods; and other economic activities in connection therewith, concerning matters of business, traffic, or technology.
- Since no property rights exist within the maritime domain and subsequently within the port areas, all economic exploitation has to be based on a system of concessions (Article 51 MC) granted to companies. The MC contains detailed rules with respect to such concessions (Articles 59–72). It should be mentioned that this system is not only applicable to port operations such as stevedoring activities, but also to industrial activities in the port areas (refineries, chemical plants, and so forth).
- The national port management system is fully enumerated in the Seaports Law, 1995 (SL). The law sets out further rules for issuing concessions. Concessions for a period longer than 10 years shall be granted by the cabinet of ministers, while concessions for a period of longer than 33 years can be granted by the parliament. Concessions with a duration of not longer than 10 years can be granted by a port authority. All concessions must be publicly tendered. The former socially owned enterprises acting both as port authorities and port operators in the previous period have the right to be issued a priority concession with a duration of 12 years (Article 63 SL). There is no freedom to set tariffs. Port construction is primarily a task of the parliament. Moreover, the law lays down a very detailed planning system.

The above outlined port management system had a disastrous effect on the development of the country's ports. Main competence problems arose between the new port authorities and the former socially owned enterprises. Throughput of the country's main port fell from some 7 million tons per annum to a mere 2 million tons. No major investors were willing to risk their money under the above institutional conditions. Presently, proposals are being developed to make the Seaports Law more market oriented to attract foreign investors.

Source: Author.

Therefore, it should be expected that detailed provisions in the concession agreement will be negotiated to minimize the effects of such changes (see Box 70).

Box 68: The Case of St. Maarten

The island's bay has sufficient depth to accommodate cruise ships, which visit the island in vast numbers. Tourism (and especially cruise tourism) constitutes a major source of income for the island. Economic benefits are estimated at \$200 million per year. Some one million cruise tourists visit the island annually.

In September 1995, the island was hit by hurricanes that seriously damaged the port's facilities. This resulted in cruise ships having to anchor in the bay and transport their passenger ashore with small tenders. This solution was only accepted by the cruise lines on a temporary basis. In 1997, the government concluded an agreement with the lines charging \$5 per passenger to (partially) finance a new cruise terminal. Plans were made to expand the terminal and dredge the bay up to a depth of 10 meters.

Reconstruction of the cruise terminal became part of a corporatization scheme. The St. Maarten Cruise Terminal N.V. (joint stock company) was established as a subsidiary of the St. Maarten Holding Company N.V., jointly owned by the government of St. Maarten and the Dutch government via the Participation Company for the Netherlands Antilles NV. (NPMNA).

The main features of the concession agreement between the island government and the St. Maarten Cruise Terminal N.V., which has a BOO character, are:

- *Limited construction risk*: A turnkey contract has been concluded with an experienced

construction firm (Ballast Nedam Caribbean NV). Its Dutch parent company (one of the largest in the Netherlands) acted as main sponsor and provided a subordinated standby facility during the construction period. It also acted as a guarantor of the obligations of the construction firm under a fixed-price construction contract.

- *No political risk*: Elimination of political risks was achieved through extended political risk cover of the Netherlands Credit Company (NCM) (95 percent, covering among other things, breach of contract by the St. Maarten government and force majeure events).
- *No hurricane risk*: This risk is covered under the commercial insurance policy of NCM.
- *Proven cash flow*: Financing is based upon an already existing cash flow and a no-growth scenario. After completion, the debt service reserve and the maintenance reserve accounts will be funded up front, guaranteed by the St. Maarten government and covered by NCM. Direct payment from the cruise lines is facilitated by an offshore escrow account of the St. Maarten Cruise Terminal N.V. Payment is approved only by the agent bank pursuant to a cash flow waterfall. There is also significant involvement by the Dutch government, including providing equity and a subordinated loan as well as appointing a board member.

Source: Author.

ANNEX I—CHECKLIST OF CONCESSION/BOT AGREEMENT PROVISIONS

(Related to a concession for the management and operation of an existing terminal and possible extension)

1. Introduction and recitals: Parties to the agreement, general considerations.
2. Definitions: Definitions are important and should be thorough. Usually they are included in a schedule to the agreement.
3. Conditions precedent: Those conditions that have to be fulfilled by the concessionaire and the port authority before the main provisions of the concession take effect.
4. Grant of concession: This provision sets out the exclusive right of the concessionaire to enter upon, occupy, possess, enjoy the benefits of, and use of the terminal.
5. Term of the agreement: The term of the concession is usually between 30 and 35 years for a BOT agreement. In case of a concession without BOT, the term may be in the order of 10 to 15 years.
6. Employment: Provisions regulating the position of employees of the port authority who will be taken over by the new terminal operator,

Box 69: Reference Clause on Lender's Security

For the sole purpose of financing its implementation of the Project and the fulfillment of its obligations under the Project Documents, the Operator may assign, by way of security, the benefit of, or its interest in, this Agreement and any of the other Project Documents according to the requirements of any of the Financing Documents and create other forms of security over any movable assets or facilities, owned by the Operator, Collateral Warranty, or other property rights, forming part of its interest in the Project in favor of any Lender for the duration of the Debt financing, only, provided that:

- (a) The Lenders shall rank ahead of concession fee and lease rental payments in case of Force Majeure under Article [Number] (political events and omissions of the Port Authority).
- (b) The Lenders and the Port Authority shall rank equally in all other cases.

The Operator shall be entitled to create over its assets:

- (a) An encumbrance that (i) arises out of title retention provisions in a supplier's standard conditions of supply of goods that are acquired by the Operator in the ordinary course of its business and (ii) applies only to the goods so supplied.
- (b) Rights of set off or liens arising solely by operation of law in the ordinary course of business.
- (c) Any security interest for the purpose of or in connection with the securing of working capital facilities provided to the Operator in the ordinary course of its business provided that the total extent of liability arising upon such security shall not exceed the lower of the Termination Compensation payable to the Operator or [%] of the net book value of the assets of the Operator. The Operator shall always procure the discharge of Security Interests upon termination of this Agreement.

Source: Author.

especially with respect to salaries, pension rights, and retrenchment (if any). This provision obviously only applies to a situation where an existing port authority owned terminal is being concessioned.

7. **Transfer of assets:** This applies to the transfer of full rights and ownership, as well as leasehold or license interests (if any) in all the movable assets and facilities in the case of the concessioning of an existing terminal.
8. **Hand-over of the terminal:** The port authority shall hand-over the concession area, the operational port infrastructure and movable assets and facilities, and books and records in relation to the operations of the terminal (if any) by giving the sole, exclusive, and vacant possession thereof to the concessionaire.
9. **Exclusivity:** After the completion of the construction of a new terminal under a BOT, the new operator may be granted exclusivity rights for a limited period, usually three to five years. These rights allow the concessionaire to build up business without being directly confronted by a competing facility.
10. **Project:** This provision gives a general description of the project. This might be the management and operation of an existing terminal as well as a possible extension.
11. **Project document compliance:** The concessionaire is not allowed to materially vary the project documents. Project documents are the concession agreement, the site lease, the port services agreement, the financing documents, the design contract, and the building contract. The concessionaire may vary the building contract under certain conditions.
12. **Project finance:** The government or port authority acknowledge the necessary financing of the project by lenders such as commercial banks or the IFC. The government or port authority usually conclude with the lenders a lenders direct agreement. This agreement regulates the rights and obligation between the government or port authority and the lenders in the event that the concession is terminated by the government or the lenders exercise their rights under the security documents.
13. **Lenders security:** The concessionaire is allowed to create forms of security over any movable assets or facilities owned or leased by the concessionaire, or other property rights forming part of its interest in the project in favor of any lender for the duration of the debt financing.
14. **Functional requirements:** The functional requirements of the extension works comprise main characteristics of the terminal (transshipment/domestic,

Box 70: Reference Clauses on Law Changes

Change in law shall mean the occurrence of any of the following events after the Effective Date of the Agreement:

- The enactment of any new applicable law.
- The modification, repeal, or reenactment (other than reenactment that merely consolidates or codifies existing applicable law) of any existing applicable law.
- The commencement of any applicable law which had not at the Effective Date yet entered into effect, except to the extent such applicable law was enacted prior to the Effective Date with a commencement date after the Effective Date and such applicable law takes effect on that commencement date without material amendment.
- A change in the interpretation or application of any applicable law by a judicial or other authority (including a court, tribunal, or any other regulatory authority) having the authority to interpret or apply such applicable law or any interpretation of any applicable law by such authority that is contrary to the existing generally accepted interpretation thereof.
- The revocation or cancellation (other than for cause) of any permit.
- To the extent that such Change in law has a material adverse effect on the rights and obligations of the Operator under this Agreement, and that such event has not been caused due to fault of negligence of the Operator.

Notwithstanding anything contained in the clause above, Change in law shall not include any change in tax laws or change in a law of general applicability, but which solely has an economic and financial impact on the Operator.

The Operator shall, on the occurrence of a Change in law, give notice of such change to the Authority in accordance with the provisions of this Article as soon as it may be reasonably practicable. The notice served pursuant to this clause shall provide, inter alia, precise details of the Change in law and the effect thereof on the Operator.

In the event that a Change in law renders impossible the exercise by the Operator of any of its material rights or performance by the Operator of any of its material rights and obligations—unless such obligation is waived by a person having the power to do so under this Agreement, the Operator may serve a notice for termination of this Agreement (Termination Notice) provided that, prior to service of the Termination Notice, the parties shall consult in good faith for a period of [number] days to mitigate the material adverse impact of the Change in law. In the event that parties are unable to agree to changes in the Agreement to mitigate the impact of the Change in law during the [number] day period, either party may refer the matter to dispute resolution, in such case the Termination Notice shall stand suspended until such matter has been resolved in accordance with Article [number].

The parties hereby acknowledge and agree that the Operator shall be entitled to serve a Termination Notice on the Authority, provided that the Change in law results in the physical and legal impossibility of performance of the Operator's obligations or exercise of its rights under this Agreement. The parties shall bear the respective impact of any economic consequences of the Change in law.

multiuser/dedicated), and the main construction elements such as quay lengths, types of gantries, depth alongside, and so forth.

15. Design solution: Comprises design and construction methods.
16. Design development: The port authority shall receive all calculations, designs, design information, specifications, plans, programs, drawings, graphs, and so forth in relation to the extension works and the operations and has the right of control of such documents.
17. Design flaws: Procedures to be followed when the concessionaire becomes aware of
- any failure of the design solution or the design data.
18. Applicable permits: The provision includes the willingness of the government or port authority to assist the concessionaire in obtaining the permits, licenses, and so forth to operate or build the terminal or terminal extension.
19. Concession area conditions: Before starting the construction, the concessionaire is deemed to have inspected the concession area. The government or port authority shall reject all liability for claims.

20. Archaeological items or geological items: All fossils, minerals, antiquities, wrecks, or structures of particular geological or archaeological interest on or under the concession area shall be deemed to be the absolute property of the government or port authority.
21. Building contract: The concessionaire shall have the right to and responsibility for selecting the designer and the builder and agreeing on the provisions of the design contract and building contract, without the approval of the port authority.
22. Construction program: The construction program is an important part of the concession. A detailed construction program, including milestones and milestone achievement dates, is included with one of the schedules. Every relevant part of a construction program has a milestone sunset date, which is defined as the latest date to achieve a milestone that is part of a construction program under a concession agreement. Nonachievement of a milestone sunset date constitutes a termination event for the port authority (see number 25 below).
23. Progress reviews: A provision with respect to monthly progress reports.
24. Extension events: An extension event prevents or delays the concessionaire from complying with the obligations of the concession during the design and construction period of the terminal. If an extension event occurs, the construction time will be extended.
25. Sanctions for late completion: The project elements should be completed by the relevant milestone achievement dates. Nonachievement of a milestone sunset date constitutes a termination event for the port authority.
26. Commissioning of the project phases: An appointed test certifier conducts commissioning tests during project phases that must be passed to allow the project to continue.
27. Operator's operational functions and activities: All the operational functions and activities allowed under the concession are listed in detail.
28. Port authority's port services: The port services of the port authority such as pilotage, towage, vessel traffic management, mooring and unmooring, provisions of water, and so forth are listed. Details of these services are usually included in a separate port services agreement with the port authority.
29. Berthing priorities: These priorities might be agreed upon between the port authority (harbormaster) and the concessionaire, but must be nondiscriminatory and subject always to such rules and regulations as may be made from time to time under applicable laws.
30. Security: Provision with respect to the tasks and obligations of both the concessionaire and the port authority, within the framework of the ISPS code.
31. Use of the terminals: The operator has the sole right to carry out the port operations and construction activities within the concession area. Also in this article, the issue of multiuser versus dedicated use of the terminals should be regulated.
32. Operator's operational performance standards: A port authority may set performance standards such as a minimum number of crane moves per hour, a minimum berth hour productivity, or a maximum vessel turn around time, and so forth.
33. Maintenance of movable assets, facilities, and infrastructure: In view of the fact that the terminal will be handed over to the port authority after termination or expiry of the concession, maintenance standards both for equipment and infrastructure maintenance should be included.
34. Operational subcontracting: The concessionaire or sponsor is usually given the right to conclude a management contract with a qualified operator, subject to approval of the port authority.
35. Tariff regulation: The provision may be necessary in case of the requirement to regulate the changes to tariffs for handling of domestic cargoes in the event of a dominant position of the concessionaire in a certain port or a series of competing ports.
36. Tariff setting: The concessionaire has the right to freely set tariffs without interference of the government or port authority, subject to possible competition regulation.
37. Site lease: Main characteristics of the site lease are included in this article, such as price and number of square meters of the area. The site lease itself is a separate document that is part of the concession. The lease rent should be indexed for inflation.

38. **TEU fee:** The fee is usually expressed in dollars or other hard currency for each TEU (other than restows) handled over the ship's rail. This article establishes the (variable) price per TEU per annum the concessionaire pays to the port authority during the term of the concession. The TEU fee should be indexed for inflation. The structure of TEU fee payments might include (number of) minimum guaranteed throughput levels.
39. **Bank guarantee:** The port authority may require a bank guarantee of the concessionaire with respect to the minimum guaranteed throughput levels.
40. **Refinancing:** The port authority may require approval in case of refinancing of the project. Instead of a bank guarantee, the port authority may require a performance bond for the throughput guaranteed and the overall obligations within the concession by the concessionaire, which is often based on the business plan submitted by the concessionaire in the bid proposal.
41. **Release from rents, taxes, levies, and other obligations and dues:** Sometimes the government or port authority grants the concessionaire release from taxes during a certain period. The terminal may also get a free zone status, which implies considerable tax advantages.
42. **Payments to the government:** Any payment made by the concessionaire to the port authority shall be considered as a valid settlement of the operator's obligations under the concession.
43. **Information supply:** The concessionaire shall supply specific information to the port authority on throughput or vessels on a monthly and annual basis.
44. **Legal compliance:** The concessionaire shall at all times during the term of the concession comply with all applicable laws, directives, and the conditions of all applicable permits.
45. **Change in law:** This article is necessary to mitigate the effect of a change in law that materially affects the operations and financial position of the concessionaire. It sets out detailed provisions describing which changes in law apply, such as changes in taxation, institutional conditions, nationalization, and so forth. Under certain conditions the government or port authority compensates losses sustained by the concessionaire as result of a change in law event.
46. **Force majeure:** Any event or circumstance or combination of events, whenever occurring, that is outside the control of the affected party, could not be avoided, prevented, overcome, or mitigated with reasonable foresight and materially prevents, hinders, or delays performance of a party's obligations under the concession. Typical force majeure events are tsunamis, earthquakes, or other acts of God; nuclear explosions; radioactive, biological, or chemical contamination; war, invasion, embargo, military coup, or revolution; and so forth.
47. **Insurance:** Insurance covers required by the port authority to be taken out by the concessionaire both for operations and for construction of new terminal facilities.
48. **Ownership of assets:** This relates to the right of the concessionaire to own mobile assets and (sometimes) buildings in the concession area.
49. **Option to continue:** The port authority may grant an option to continue or a right of first refusal after the expiry of the concession.
50. **(Interim) termination by the government:** This article comprises detailed events that may lead to termination of the concession by the government, such as a material breach of the concessions, nonpayment of fees, and so forth.
51. **Termination by the operator:** The concessionaire might terminate the concession when a material breach occurs by the government or port authority of their obligations under the concession.
52. **Termination procedure:** In the event of termination either by the port authority or the concessionaire, a termination procedure is agreed on that sets out detailed provisions of the rights and obligations of the parties, such as notice to terminate, remedial program, and information to the lenders of the concessionaire.
53. **Rights cease:** On termination or expiry of the concession, all future rights and obligations of the port authority and the concessionaire shall cease and the site lease and the port services agreement shall also be terminated automatically.
54. **Termination compensation:** In case of termination by one of the parties to the concession, the ports authority shall pay termination compensation. Depending on which party terminates the agreement, the termination compensation consists of a percentage of the fair value,

established by an independent expert. There are several methods to be used to determine the fair value, which should be stipulated in advance in the concession agreement. Methods used include historical cost, inflation adjusted historical cost, depreciated replacement cost, optimized depreciated replacement cost or modern equivalent asset value, and optimized depreciable value. The expert shall never apply any earnings-based valuation methodology or any goodwill in the business of the concessionaire.

55. Hand-back: After expiry of the concession, the concessionaire shall hand back the entire terminal to the port authority. This article includes detailed instructions and technical requirements and procedures on how the hand-back shall take place. This is to assure the proper state of the facilities when returned to the port authority.
56. Asset transfers on expiry or termination: It is necessary to regulate the good cooperation between the port authority and the concessionaire regarding the hand-back of the facilities to the port authority.
57. Information technology (IT) license: At the end of the concession, it might be necessary to transfer IT licenses to the port authority to guarantee uninterrupted operation on the terminal during transfer to a new operator.
58. No share or liability acquisition: This article sets out the terms and conditions in case of participation of the port authority in the capital of the concessionaire or vehicle company.
59. Employees: At the expiry of the concession, the position of the employees will have to be regulated. Usually they will be transferred to the new operator with certain conditions such as the continuation of earlier salaries and benefits as well as accrued pension rights.
60. Conflict resolution: This article sets out detailed procedures for conflict resolution including international arbitration.
61. Waiver of immunity: It will be necessary for the government and the port authority to waive most forms of sovereign immunity to create a level playing field with a private concessionaire.
62. Recognition of lenders' rights: The port authority may include in the concession a special recognition of the lenders who will be deemed to be beneficiaries under the concession.
63. Performance monitoring: A general provision in the event that a party fails in the performance of its obligations under the concession. When that failure is capable of remedy, the affected party may serve a notice on the other party requiring such other party (at its own cost) to remedy that failure.
64. Transfer committee: The committee, consisting of representatives of both the port authority and the concessionaire, is responsible for the transfer process at the termination or expiry of the concession.
65. Responsibilities: The port authority and the concessionaire shall be solely responsible for the performance of their functions and services and for all the acts, or failures to act, of itself and of its contractors, subcontractors, suppliers, and agents.
66. Liabilities: Neither the government, the port authority, nor the concessionaire shall be liable to the other for any loss, cost, liability, or expense arising from any breach of the agreement other than for actual loss directly resulting from the breach.
67. Confidentiality: The parties may agree to keep the details of the concession confidential during a certain period.
68. Disclosed data: Restriction by the government or port authority for the liability of disclosed data on the terminal or concession area.
69. Change in institutional structures: During the term of the concession, the institutional structure of the government or the port authority may change. The concessionaire agrees with the variation of the concession, provided that such variation does not affect its rights, obligations, and liabilities under the agreement.
70. Variations: Variations in the project documents shall only be valid if they are in writing and signed by or on behalf of each of the parties.
71. Applicable law: Establishment of the law applicable to the concession. This is usually the law of the country where the terminal is located.
72. Notices: Elected domiciles for formal notices to be served under the concession.

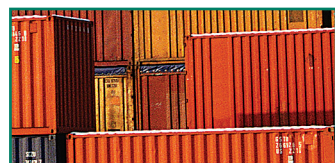


PORT REFORM TOOLKIT

SECOND EDITION

M O D U L E 5

FINANCIAL IMPLICATIONS OF PORT REFORM



THE WORLD BANK

© 2007 The International Bank for Reconstruction and Development / The World Bank

All rights reserved.

The findings, interpretations, and conclusions expressed herein are those of the author(s) and do not necessarily reflect the views of Public-Private Infrastructure Advisory Facility (PPIAF) or the Board of Executive Directors of the World Bank or the governments they represent.

Neither PPIAF nor the World Bank guarantees the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of PPIAF or the World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

The material in this work is copyrighted. Copyright is held by the World Bank on behalf of both the World Bank and PPIAF. No part of this work may be reproduced or transmitted in any form or by any means, electronic or mechanical, including copying, recording, or inclusion in any information storage and retrieval system, without the prior written permission of the World Bank. The World Bank encourages dissemination of its work and will normally grant permission promptly.

For all other queries on rights and licenses, including subsidiary rights, please contact the Office of the Publisher, World Bank, 1818 H Street NW, Washington, DC 20433, USA, fax 202-522-2422, e-mail pubrights@worldbank.org.

ISBN-10: 0-8213-6607-6

ISBN-13: 978-0-8213-6607-3

eISBN: 0-8213-6608-4

eISBN-13: 978-0-8213-6608-0

DOI: 10.1596/978-0-8213-6607-3

MODULE FIVE CONTENTS

1. Introduction	203
1.1. Cost Risk	204
1.2. Revenue Risk	204
Part A—Public-Private Partnerships in Ports: Risk Analysis, Sharing, and Management	206
2. Introduction	206
3. Characteristics of the Port Operator	207
3.1. General Aspects	207
3.1.1. National Environment	207
3.1.2. Industrial and Commercial Dimension	208
3.2. Specific Aspects Particular to the Port Sector	208
3.2.1. Vertical Partnership with the Concessioning Authority	208
3.2.2. Horizontal Partnership with Numerous Players	209
3.2.3. Long-Term Commitment	210
4. Risk Management	211
4.1. Country Risks	211
4.1.1. Legal Risk	211
4.1.2. Monetary Risk	212
4.1.3. Economic Risk	213
4.1.4. Force Majeure	213
4.1.5. Interference or “Restraint of Prices” Risk	213
4.1.6. Political Risk	214
4.2. Project Risks	215
4.2.1. Construction Risks	215
4.2.2. Hand-Over Risks	216
4.2.3. Operating Risks	216
4.2.4. Procurement Risks	217
4.2.5. Financial Risks	217
4.2.6. Social Risk	218
4.3. Commercial or Traffic Risk	218
4.4. Regulatory Risks	219
4.4.1. Regulatory Tools	219
4.4.1.1. Technical Regulations	220
4.5. Economic and Financial Regulation	221
4.5.1. Scope of Operator Activity	221
4.5.2. Public Service Obligations	221
4.5.3. Noncompetition Guarantees	222
4.5.4. Pricing Controls	222
4.5.5. Fee or Subsidy	223
4.6. Golden Share or Blocking Minority	224
4.7. Risk and Port Typology	224
4.7.1. Operator Handling Only Its Own Traffic	224
4.7.2. Operator Acting on Behalf of a Third Party in a Competitive Situation	224
4.7.3. Operator Acting on Behalf of a Third Party in a Monopoly Situation	225
4.7.4. Transit or Transshipment Traffic	225
4.7.5. Mixed Situations	226
4.8. Other Concessioning Authority Guarantees	226

4.9. Contractual Risks	227
4.9.1. Contract Management	227
4.9.2. Indexation Risk	228
4.9.3. Credit Risk—Bonds	228
4.10. Approach of the Different Partners to Risk and Risk Management	228
4.10.1. Concessioning Authority	229
4.10.2. Project Sponsors	229
4.10.3. Lenders	230
5. Concluding Thoughts	230
Part B—Principles of Financial Modeling, Engineering, and Analysis:	
Understanding Port Finance and Risk Management from Public and Private Sector Perspectives	231
6. Introduction	231
7. Measuring Economic Profitability from the Perspective of the Concessioning Authority	231
7.1. Differential Cost-Benefit Analysis	231
7.2. Commonly Used Economic Profitability Indicators	232
7.3. Assessing the Economic Costs of the Project	233
8. Rating Risk from the Perspective of the Concession Holder	233
8.1. Financial Profitability and “Bankability” of the Project	233
8.2. Assessing the Project Risks by Producing a Rating	234
8.2.1. Commonly Used Financial Profitability Indicators	234
8.2.1.1. Payback Time.	234
8.2.1.2. Project IRR.	236
8.2.1.3. Project NPV	236
8.2.1.4. Investment Cover Ratio	236
8.3. Project Discount Rate—Cost of Capital	236
8.4. Financial Debt Remuneration Requirement	237
8.4.1. Inflation	238
8.4.2. Risk Rating by Determining rd	238
8.4.3. Debt Remuneration Requirement Conclusion	238
8.5. Equity Remuneration Requirement	238
8.5.1. Sharing of Public-Private Financial Commitments: Arbitration between Financial and Socioeconomic Profitability	240
9. Financial Project Engineering	240
9.1. Financial Structuring within the Framework of a Project Finance Set-Up	240
9.2. Debt Structuring	242
9.3. Long-Term Commercial Debt	242
9.3.1. Foreign Currency Loans	243
9.3.2. Guaranteed Commercial Debt	243
9.3.3. Export Credits	243
9.3.4. Financial Credits with a Multilateral Umbrella (A- and B-loans)	244
9.3.5. Bonded Debt	247
9.3.6. Structuring Equity and Quasi-Equity	247
9.3.6.1. Equity Provided by the Public Sector	247
9.3.6.2. Equity Invested by the Project’s Sponsors	248
9.3.6.3. Equity Invested by Multilateral Institutions	248

9.3.6.4. Equity Invested by Bilateral Institutions	249
9.3.6.5. Specialist Investment Funds	249
9.4. Managing Exogenous Financial Risk	249
9.4.1. Interest Rate Risk Management	250
9.4.1.1. Interest Rate Swaps	251
9.4.1.2. Firm Financial Instruments in the Over-the-Counter Market	252
9.4.1.3. Firm Financial Instruments in the Organized Markets	252
9.4.1.4. Conditional Financial Instruments (interest rate options)	252
9.4.2. Foreign Exchange Risk Management	252
9.4.3. Counterpart Risk Management and Performance Bonds	254
9.5. Financial Engineering and Political Risk Management	254
9.5.1. Guarantees Offered by Multilateral Agencies	255
9.5.2. Guarantees Offered by Export Credit Agencies	257
9.6. The Use of Private Insurers for Covering Political Risks	257
10. Financial Modeling of the Project	257
10.1. Construction of the Economic Model	257
10.1.1. Capital Expenditure Types	257
10.1.2. Operating Revenues and Expenses	258
10.1.2.1. Operating Revenue and Charges in Terminal Management Operations	259
10.1.2.2. Operating Finance Requirement	259
10.1.2.3. Operating Account Balance	259
10.1.3. Tax Flows	260
10.2. Construction of the Financial Model	260
10.2.1. Cash Flow Statement	260
10.2.2. Profit and Loss Account (income statement)	260
10.2.3. Balance Sheet	261
References	261
Appendix: Risk Checklist—Principal Risks in a Port Project	263

BOXES

Box 1: Richard's Bay Coal Terminal: A Wholly Private Terminal	219
Box 2: Port Réunion: A Single Container Terminal Using Several Handling Contractors	223
Box 3: Owendo Ore Terminal in Gabon	225
Box 4: Container Terminals in the North European Range	225
Box 5: Container Terminal Operator in the Port of Klaipeda	226
Box 6: Port of Djibouti: Transit and Transshipment	226
Box 7: Djibouti Fishing Port: Public Service and Semi-Industrial Activity	227
Box 8: Horizontal and Vertical Partnerships in the Port of Maputo, Mozambique	227
Box 9: The Country Ranking Developed by Nord-Sud Export	235
Box 10: An Example of Export Cover by COFACE in a Port Project	245
Box 11: Principal Guarantees Offered by an Export Credit Agency for Project Financing: The COFACE Example	246

Acknowledgments

This Second Edition of the Port Reform Toolkit has been produced with the financial assistance of a grant from TRISP, a partnership between the U.K. Department for International Development and the World Bank, for learning and sharing of knowledge in the fields of transport and rural infrastructure services.

Financial assistance was also provided through a grant from The Netherlands Transport and Infrastructure Trust Fund (Netherlands Ministry of Transport, Public Works, and Water Management) for the enhancement of the Toolkit's content, for which consultants of the Rotterdam Maritime Group (RMG) were contracted.

We wish to give special thanks to Christiaan van Krimpen, John Koppies, and Simme Veldman of the Rotterdam Maritime Group, Kees Marges formerly of ITF, and Marios Meletiou of the ILO for their contributions to this work.

The First Edition of the Port Reform Toolkit was prepared and elaborated thanks to the financing and technical contributions of the following organizations.

The Public-Private Infrastructure Advisory Facility (PPIAF)

PPIAF is a multi-donor technical assistance facility aimed at helping developing countries improve the quality of their infrastructure through private sector involvement. For more information on the facility see the Web site: www.ppiaf.org.

The Netherlands Consultant Trust Fund

The French Ministry of Foreign Affairs

The World Bank

International Maritime Associates (USA)

Mainport Holding Rotterdam Consultancy (formerly known as TEMPO), Rotterdam Municipal Port Management (The Netherlands)

The Rotterdam Maritime Group (The Netherlands)

Holland and Knight LLP (USA)

ISTED (France)

Nathan Associates (USA)

United Nations Economic Commission for Latin America and the Caribbean (Chile)

PA Consulting (USA)

The preparation and publishing of the Port Reform Toolkit was performed under the management of Marc Juhel, Ronald Kopicki, Cornelis "Bert" Kruk, and Bradley Julian of the World Bank Transport Division.

Comments are welcome.

Please send them to the World Bank Transport Help Desk.

Fax: 1.202.522.3223. Internet: Transport@worldbank.org

5

MODULE

Financial Implications of Port Reform

SECOND EDITION

1. INTRODUCTION

Over the last few years, there has been a strong trend toward the introduction of private management in the port domain in both industrialized and in developing countries. This privatization principally concerns the handling and storage of freight transiting via the port, and the funding and operation of the infrastructure, superstructures, and equipment required for these activities. This trend has involved the construction of complex, multidimensional partnerships between public port authorities and terminal operators. Module 5 presents an analytical framework for assessing the risks confronting port operators and with the goal of identifying principles for the equitable sharing of each risk between the public and private sector parties involved.

This analysis demonstrates that the scope of port terminal operator covers a range of different situations, depending on the type of traffic handled and the degree of competition surrounding the activity. This diversity substantially affects the degree of required regulation of the operator's activity on the part of the port authority or other regulating body (see Module 6). This regulation, in turn, has major implications for the operator, both in terms of the level of risk carried and risk management capacity. Therefore, the principles adopted for sharing the risk between the port authority and

the terminal operator must take this essential consideration into account.

Reducing the situation to its simplest terms, the terminal operator carries two fundamental risks: a cost risk, or a risk of exceeding initial cost estimates for the construction or operation of the project, and a revenue risk, or commercial risk, depending on traffic and revenue yields.

There is nothing extraordinary about this situation. Any enterprise operating in any field of activity has to carry these risks. However, the terminal operator conducts its activity largely in

the public domain, and can have the support of public investment, supply a public service, and enjoy a de facto monopoly. Over and above the overarching legislative and statutory framework, some measure of regulation of its day-to-day activity is often deemed necessary. This regulation can cover a number of technical aspects (definition of the project, performance standards, standards relating to maintenance of the facilities, and so forth), economic aspects (public service obligations or field of activity restrictions), and financial aspects (control of prices, fees, or subsidies). Module 6 reviews in detail the aspects pertaining to economic and financial regulations.

What is the impact of regulation on the cost and revenue risks, and in what way does it condition the principles for sharing these risks?

1.1. Cost Risk

The constraints imposed by technical regulation have an impact on the initial estimation of project cost (investment and operation). However, provided the rules of the game are established at the outset, and provided these rules are clear, stable, and complied with, they do not affect the excess cost risk, which then only depends (apart from cases of force majeure) on the ability of the operator to implement the project. Under such circumstances, it is reasonable to expect the operator to identify and assume the full cost of attendant risks.

Where risks and associated excess cost stem from changes in the regulatory system or legal framework established prior to signature of the contract, the principles of risk sharing must then depend on the very nature of the activity. Two situations are possible in this case:

- The service provided by the operator is not regarded as a public service. The degree of regulation is then low, and has no reason to change. The risk of changes in the legal framework is considered by the operator as a country risk, such as exists for any industrial company. It is reflected by an adjustment of the initially

anticipated level of return, and can be subsequently passed on to customers through increases in charges.

- The service provided by the operator is regarded as a public service. The contract concluded between the port authority and the operator is then similar to a public service franchise agreement. Integration of this risk by the operator would increase the cost of the service provided and would have an adverse impact on the user. Furthermore, regulation of tariffs imposed on the operator could make it impossible for the operator to pass on increases to the user at a later date. It therefore appears equitable that this risk should be shared.

The principles of risk sharing should be clearly defined on signature of the agreement, and can cover guarantees of stability or provide appropriate compensation (for example, lifting of pricing constraints, indemnities, or other considerations).

1.2. Revenue Risk

In contrast to the cost risk, regulation has a direct impact on the extent of the revenue risk for the operator and on its ability to manage this risk. The revenue risk is in fact the principal risk involved in a port project due to the uncertainty inherent in traffic and throughput level predictions.

As a general rule, it is desirable to assign the traffic risk to the operator. This is possible and justified in a case where the activity is not a public service. Sharing of profits between the port authority and operator can be envisaged under certain circumstances. This is also possible in the majority of cases where the activity is subject to genuine competition.

On the other hand, sharing of this risk is frequently necessary in the case of a public service monopoly. The substantial degree of regulation required in this case imposes such constraints on the operator that it has little means of managing the commercial risk. The port authority

can then, as appropriate, provide the concessionaire with a guarantee of noncompetition, possibly temporary, or even implement a negative concession formula where the operator bids for the lowest level of subsidy required when the traffic is acknowledged to be too low to sustain commercial viability.

While the operator is then no longer fully at risk for meeting the project's projected revenue level, it must continue to bear responsibility for the costs. The regulatory system therefore must not deviate from the principle of assigning the project risk to the operator. This is the case where the contract provides for a guaranteed minimum level of return, or adjustment of rates and charges according to costs.

Another risk for the operator is present in all cases. This is the political risk of noncompliance with the terms of the contract by the public authority, or the imposition of discriminatory measures affecting the project. This risk can be reduced by various methods, or hedged. The assessment of this risk nevertheless represents a major factor in the decision of the operator to proceed or not with the project. Political risk may manifest itself either as a revenue risk or a cost risk.

In the end, the principles of risk sharing between the public port authority and the operator depend, to a large extent, on the degree of public service accorded (or not) to the activity concerned by the national authority and the resultant regulation. The initial situation frequently is that of a stagnant public sector, with little means of clearly identifying among the various tasks in which it is engaged those which relate genuinely to the public service, and which, when delegated or franchised to an operator, demand strict regulation. While a form of partnership always exists between the port authority and the operator, the activities of the port terminal operator do not always embody the characteristics of a public service, and do not therefore require the same level of regulation in all cases. Note, however, that any form of regulation imposes costs, namely the cost of the additional risk imposed

on the operator (reflected by a requirement for a higher rate of return), the cost of resultant considerations, or simply the cost of supervision. To minimize such costs, the objective should be to regulate only in those cases where it is clearly essential.

The port terminal operator has numerous partners in the provision of comprehensive port and transportation service, the most important of which is the port authority itself. The port authority therefore, is not often only a regulator, but also the primary partner of the terminal operator. From this point of view, the type of "horizontal" partnership between terminal operator and port authority does not differ from that which can exist between two companies. Of necessity, this partnership involves reciprocal obligations, with the port authority guaranteeing not only the services that it provides directly, but also those which it may be led to delegate to other entities operating within the port complex.

The involvement of private companies in port management leads to the introduction of a complex, multidimensional partnership with the port authority. This requires the establishment of a clearly defined, stable, contractual framework that enables the operator to quantify and manage the risks with which it will be confronted, and which is based on comprehensive legal procedures and techniques. However, no contract can provide for all eventualities. It is therefore necessary to include clauses that define the conditions and procedures for periodic reviews and negotiations for the purpose of making necessary adjustments. Apart from this renegotiation process, the option of issuing new calls for tender at periodic intervals during the lifetime of the project is a possibility, despite practical problems of implementation. In some cases, a clear division between infrastructure and equipment management and activities management may be desirable. See Module 4 for a full discussion of legal issues.

Once the risks have been distributed between the public and private partners, the private operator—the concessionaire—will seek to

“quantify” and “rate” the residual risk it must bear. The risk valuation will be determined through country and project ratings. Tariff setting will be contingent upon a minimum financial break-even point, below which prospective concessionaires will be unwilling to participate. From the point of view of the concessionaire then, the riskier the project, the higher the requirement of expected returns.

A risk-return assessment is an integral part of a comprehensive profitability analysis of the project. Such analysis would help determine under what conditions and terms the project will succeed in meeting the needs of the market, given the ever changing nature of these needs. This is what is implied when analysts speak of “project bankability.” The operator is now faced with two compelling sets of parameters resulting from the profitability analysis and the cost-effectiveness analysis of the project, and their impact on the socioeconomic returns for the community at large. Because of these market-driven financial constraints and the fragile nature of the public-private partnership, there is as much a case for sharing financial obligations as there is for risk distribution between the port authority and the concessionaire. To reach agreement on an equitable distribution of risks, the difficult balance between socioeconomic returns of a project and financial profitability must first be achieved. This amounts to finding the optimal equilibrium within the framework of a regulatory system acceptable to both partners.

Part A of this module focuses on the issue of “financial engineering” and the effort to secure the best terms for financing and coverage of the project based on the risk analysis and the financial constraints. The key components are the structuring of the project equity and debt, and the management of “exogenous” and political financial risks. Financial engineering is a complex process given the constant introduction of new and more sophisticated financial tools; it is also a delicate process because financial partners commit to projects on a long-term basis. Since

project funding is such a critical element of any significant port reform initiative, a solid understanding of financial engineering is essential. Part A takes a pragmatic view of the subject and seeks to establish a basic understanding of what is at stake. It does not attempt to undertake a comprehensive treatise on the more sophisticated mechanisms for coverage and financing.

PART A—PUBLIC-PRIVATE PARTNERSHIPS IN PORTS: RISK ANALYSIS, SHARING, AND MANAGEMENT

2. INTRODUCTION

We are witnessing a vast movement toward the privatization or private management of public services throughout the world, in industrialized as well as in developing countries. This trend is especially marked in the port sector, where calls for tenders to introduce private management to ports previously under the control of the government or other public entity have increased substantially in the last few years. This trend has created a market for companies to develop port concessions. Projects of this type, which are frequently set up on a project financing basis, generate significant risks for the various parties involved (private sector, investors, and lenders).

Port reform also requires public authorities to take on a new role, that of “concessioning authority” or regulating authority. These changes permit the public authority to concentrate on its essential tasks of economic, social, spatial, and temporal regulation to achieve the best balance among the interests and demands of the various port and shipping entities and of the general public.

Part A of this module will review a number of financial aspects of port reform using the example of a public landlord port that has decided to transfer a terminal into the hands of a private operator. (See Module 3 for a full discussion of service, tool, and landlord ports.) This involves to a greater or lesser degree the delegation of

design, construction, and operating functions to the private sector. In this context, the partnership established between the port authority and operator can take a number of different forms. These are difficult to describe accurately by means of a simple topology as many different types of contracts can be used (see Module 4). Apart from the usual distinctions in terms of the delegated services, ownership of the facilities or the point in time at which the operator intervenes during the lifetime of the project (operation and maintenance contracts, lease contracts, concession, BOT [build-operate-transfer], or BOO [build-own-operate] agreement, and so forth), particular attention will be paid to the problem of risk sharing between the port authority and the operator. All public-private partnerships are defined in a contract, the content of which must be adapted according to the characteristics of the particular project. These contracts reflect the mutual commitments of the parties and in defining them, the risks assumed by each party.

One of the essential conditions for the success of port reform projects is the ability to identify risks. This is a prerequisite to determining optimum risk sharing between the various participants according both to their respective capacity for risk management and their willingness to carry these risks. We shall therefore address the question of risk sharing analysis in greater depth, by means of a pragmatic examination of what it signifies from the terminal operator's viewpoint. The tools we will employ will include a set of principles constituting a code of good practice that have proven acceptable to all parties for risk allocation and sharing in various situations, and an assessment grid that can be used to perform a quick evaluation of the main risks of a project and the ability of a candidate operator to manage these risks.

3. CHARACTERISTICS OF THE PORT OPERATOR

In the majority of cases, private sector participation in port operations comprises industrial and commercial activities, the foremost of

which are the handling and storage of merchandise passing through the port. These port activities involve business practices common to all companies as well as aspects that are highly specific to the port sector.

One can characterize the port operator through a description of these basic and specific aspects and, using this characterization, establish an initial classification of the risks that the operator is likely to encounter. This approach deliberately leaves the definition of the “port” very broad to demonstrate the complexity of the environment of the port operator, whose activity simultaneously takes place in a port community, a transport chain, and national and an international economies, while nevertheless preserving the principal characteristics of an ordinary company.

3.1. General Aspects

3.1.1. National Environment

In common with any other private company, a port operator must transact business according to the legal, economic, social, and political environment of the country in which it is conducting its activity. The legal and statutory environment incorporates the applicable common law rules and regulations, whether stemming from national legislation or international agreements of which the country is a signatory. These include company law; rules of fair competition; tax law; exchange control; regulations governing transfer prices and tax withholding on the payment of dividends; labor laws; laws relating to the protection of the environment; police; concession and property ownership regulations; and customs regulations. This environment also comprises specific measures applicable to ports, such as those concerning their legal status, rules regarding police and security services, and even special measures relating to property ownership, labor laws (as specific to dock workers), taxation, and so forth.

The economic environment is defined by the relevant macroeconomic factors (growth, inflation, exchange laws, debts, and so forth), as well as the wage and salary levels, the level of

training and skills of local human resources, price levels, and so forth.

In its broadest sense, the political and social environments are based on prevailing geopolitical conditions, the stability of the existing national, local, or regional government, the possible risk of armed conflict, the labor climate, and so forth.

The port operator is thus subject to the full range of national legal, economic, social, and political influences that determine the stability of the nation and locale in which the project is located. This must be analyzed in detail, as this environment generates a number of risks, typically referred to as “country risks.”

3.1.2. Industrial and Commercial Dimension

A port operator is a service provider, although with a substantial industrial and commercial (infrastructure and investment) dimension. This is one of the reasons behind the desire to introduce private management in ports. It is generally admitted that a private company has a degree of flexibility and an ability to react quickly that enables it to achieve greater efficiency than a public entity.

In the course of its activity, the operator must finance, install, operate, and maintain the necessary infrastructure, superstructures, and equipment. In common with any other company, the operator must apply its own expertise and resources, while also establishing contractual relationships with various equipment suppliers or service providers (construction contracts and the purchase of tooling, water, electricity, and so forth), employing subcontractors for specific operations (maintenance, security, or even the operations themselves), and with the banking sector for the financial package on which the operation is based. This industrial dimension of the operator’s activity creates what are referred to as “project risks.”

The port operator deals daily with its customers, whether shipowners or shippers, who

are sensitive to the quality of service supplied and the rates charged. These aspects, in turn, are directly affected by the extent of competition confronting the operator. This relationship with customers, on which the level of activity is largely dependent, generates a “commercial risk” or “traffic risk” for the operator.

3.2. Specific Aspects Particular to the Port Sector

3.2.1. Vertical Partnership with the Concessioning Authority

Apart from the legal environment as described above (common law and sector-related rules), under the terms of its contract with the operator, the port authority imposes a set of measures on the operator defining, directing, regulating, or simply authorizing the operator’s activity over a given period. This form of relationship between the port authority and the operator is described here as a “vertical partnership.” This vertical partnership reflects the extensive scope of public service activities the port authority often delegates to the port operator. Inclusion of these measures in the operator’s contract is justified for a number of reasons:

- The port activity involves public issues including issues relating to national economic development, land use, and the handling of external trade.
- The tasks undertaken by the operator may have the characteristics of a public service and may be burdened with at least some of the obligations inherent in the notion of public service, including nondiscrimination and continuity of service.
- The nature of the activity in or the physical location of the port can lead to the development of de facto monopolies with substantial entry barriers (for example, rarity of sites, need for public investment, or an insufficient level of activity for more than one operator). This type of situation makes the intervention of a regulating authority necessary to protect users from an abusive advantage due to a dominant

position. However, this recognized need for oversight should not cast doubt on the principle of legal security, and must avoid any malpractice whereby the port operator could be subjected to arbitrary decisions.

- The activity of the port operator can require public investment in addition to private investment. The investment necessary for the operator's activity can produce a return on invested capital that, while satisfactory for the public entity involved, is insufficient for the private investor. This is the case where the project generates positive externalities and where it is not possible to obtain a direct contribution from all the indirect beneficiaries of these external effects. The need to draw on public funds also stems from the lengthy lifetime of port facilities, which makes it necessary to obtain a return from the latter over periods that substantially exceed the term of loans available on the financial markets.
- The shoreline forms part of the public domain in many countries, which means that, at the least, express authorization (unilateral or contractual) is required to engage in an activity along the waterfront.

It is the integration of these constraints by the public authority that makes a vertical partnership and government oversight essential. These constraints also have substantial consequences for the port operator and the risk it incurs and its ability to manage this risk. These consequences flow from several factors including:

- The concessioning authority may impose conditions and constraints on the operator's industrial project, resulting in cost increases.
- Regulation imposed by the concessioning authority can limit the ability of the operator to manage commercial risks, requiring a sharing of that risk.

- Vertical partnerships by their very nature lead to contractual risk for the operator because the partnership with the port authority is based on a contractual relationship.

3.2.2. Horizontal Partnership with Numerous Players

The service a port operator provides to its customers, whether shipowner or shipper, is part of a more global service of which the operator only provides one element. The operator is thus in a de facto partnership with service providers handling the other components of an integrated transport and logistics chain. This is referred to as a horizontal partnership. This type of partnership may also exist with the port authority if it is a service provider, and with other players of widely differing specializations. It can also be an impromptu partnership, not formalized by direct contractual links between the parties concerned. The extent of and parties to this horizontal partnership depend on the legal position and activity of the customer.

One can broadly describe the integrated service expected by the port operator's principal customers, shipowners and shippers. For a shipowner, the integrated service expected covers all operations required for the ship's call. The services provided by the terminal operator (handling and storage) represent the most sensitive and costly parts of the call, although a vessel call also requires suitable maritime access, operational buoying, properly maintained basins protected from the swell, efficient services to the vessel (pilot, tugs, in-shore pilot), and modern electronic data interchange (EDI) and vessel traffic services (VTS), and so on. Above and beyond the service offered by the terminal operator, this means that the shipowner is sensitive to factors such as the level and reliability of the supporting services provided in the port zone. This identifies a first level of horizontal partnership within the port community, where the partners can be other public or private companies, and the port authority itself. Procedures implementing this partnership are formalized in contracts concluded between the port authority and

the companies operating in the port zone, or via police and operating rules and regulations.

For a shipper, the relevant service is the end-to-end transport service, using a transport chain in which transit via the port is merely one link, or more precisely a node. This means that the shipper is sensitive to the existence and competitiveness of the land transport modes serving the port as well as to the coordination of these services with the port services. This depends on a multitude of factors—controlled by numerous players—including the quality of road, rail, or inland waterway transport infrastructure; the quality of the services provided by the operators of the different modes of transport; and various regulatory measures (flag restriction, charges, and so forth). This leads to a second level of horizontal partnership, where the partners are of varying types and frequently remote from the port activities proper. This situation leads a number of transport companies to seek the integration of the port operator and land carrier business to achieve more efficient control of a larger part of the transport chain.

In addition, it is clear that the ways in which the government agencies carry out their functions in a port (for example, customs, veterinary and phytosanitary departments, or frontier police) represent another aspect of performance that is taken into account by customers when assessing the competitiveness of a particular port. In this context, for example, the European Union recognizes that the conditions under which customs control is exercised can distort the competitive situation (“Douane 2000” program). Similarly, a number of countries in Africa have recognized this problem and taken steps to harmonize their customs rules and practices (Central African States Customs Union).

It is therefore apparent that the port operator does not control all components of the global services delivered to its customers. The customer’s decision to use the operator’s services, then, also depends on factors external to the operator. These factors are under the control of

numerous players with which the operator is not necessarily in direct contact. This situation creates a further commercial risk for the port operator and complicates the management task.

3.2.3. Long-Term Commitment

The port operator runs a business. Consequently, it seeks to maximize profit, although its primary objective is at least to achieve a minimum acceptable level of return on operations and investment to be able to cover its costs and to remunerate its lenders and sponsors. The investments that the operator makes typically display two special characteristics: they are substantial, indivisible, and have extended lifetimes, meaning that they can be depreciated and yield a proper return only over periods frequently exceeding 20 years, and they are “nonrecoverable,” either because they cannot be physically dismantled (for example, a coffer dam) or because the concessionaire does not own the infrastructure or equipment in question.

The justifiable demand of the operator for a reasonable return on investment necessarily requires that it have the right to exploit those investments for a sufficiently long period of time. The above-mentioned characteristics generally mean that an operator’s early withdrawal from a project would have substantial negative financial consequences. In some cases, though, a long-term commitment by the operator may also become a source of concern to the concessioning authority. It is therefore in the interests of both parties to seek a clear and stable legal arrangement by:

- Agreeing to an appropriate contract period giving due recognition to the special characteristics of the project.
- Attributing genuine rights of ownership to the operator for facilities installed in the public domain.
- Agreeing on an equitable and clear cancellation procedure (stipulating causes and indemnification).

- Adopting rules of the game that both reduce uncertainty and ensure proper transparency.

4. RISK MANAGEMENT

Risk management by the terminal operator involves a number of steps. Based on the approach adopted by many financial institutions for funding projects with limited or no recourse, these steps are:

- Risk identification.
- Sharing of risks with the port authority, the state, or other public authorities where it is justified or possible.
- Sharing of risks with partners (for example, sponsors, customers, suppliers, or subcontractors).
- Reduction of exposure to residual risk (or the probability of its occurrence).
- Reduction or limitation of the consequences of residual risks (for example, use of insurance or accruals).
- Adjustment of the expected rate of return according to the degree of residual risk.

Two principles should be applied in situations where the activity of the operator represents the delegated management of a public service. First, the reduction of the project's global risk (and consequently of project cost) requires the proper allocation of risk. Risk sharing between concessioning authority and concessionaire on the one hand, and the various sponsors and lenders on the other, must be based on analyses designed to identify and allocate risks to those parties that can carry them best (with least negative impact). Second, any risks allocated to the operator will be reflected in a requirement for higher profits, in terms of level or duration, with a resultant increase in the cost of the service provided. It is, consequently, in the interest of the concessioning authority to restrict, as far as possible, the unnecessary imposition of risks on the operator when the operator is not in a position to manage them. In other words, it is undesirable to make the operator carry risks

that the public sector would be able to carry at a lower cost.

This section explores the approaches operators can use to manage the various types of risk previously identified, and applies the principles set out above to suggest equitable systems for risk sharing between concessioning authority and concessionaire.

4.1. Country Risks

Detailed below are risks resulting from the national and international framework within which the projects must operate.

4.1.1. Legal Risk

Legal risks arise in connection with the lack of precision in and the possibility of changes in the legislation and regulations governing the project. It must be assumed that a set of rules exist at the time the project is initiated.

Insufficient precision in applicable laws and regulations can lead to disputes and misinterpretations and therefore creates risk. In some cases, legal issues can be extremely complex, not only because laws and regulations can be subject to a variety of interpretations, but also in terms of jurisprudence. Furthermore, common practice frequently imposes a number of mandatory rules in terms of port operation (for example, FOB [free on board] Dunkirk, Antwerp).

Consequently, a thorough legal analysis should be undertaken prior to the implementation of the project. When the project is located in an area unfamiliar to the operator, it is particularly prudent to call on the services of local legal advisors specializing in the various disciplines involved in the project. This will help to reduce the incidence of circumstances that might delay project implementation. The risk of noncompliance by the operator with legal or regulatory requirements through ignorance is one carried exclusively by the operator.

The risk of changes in legislation or regulations stems from the possibility that circumstances in effect at the time of the agreement may change at a later date. According to the principles put

forward at the beginning of this chapter, one can argue that the operator is justified in calling for guarantees of legal stability to guard against changes over which the operator has no control. Any such guarantee of legal security should not come at the expense of fair competition among operators or jeopardize the continued operation of any public service. On the other hand, in the case where management of public service is delegated to an operator, the operator is not in an ordinary business situation. First, because the permanency of the operator's activity is essential to ensure continuity of the public service, and second, because the degree of regulation imposed on the operator may well prevent it from adapting to such changes in the legal environment. Consequently, it is desirable either to guarantee stability or to include a contract revision clause to avoid situations where a change in the legislation or regulations could put the financial viability of the project in jeopardy.

The risk of changes in legislation relating to the environment can be particularly significant, and can materialize during the construction or the operational phase. Prior to any decision concerning privatization, the prudent concessioning authority should undertake an environmental study of the project. Conventionally, such studies include:

- The impact of the construction of marine infrastructures on the existing marine environment.
- Management of pollution from ship wastes.
- Management of dredging-induced contamination.
- Management of pollution resulting from accidents.

With respect to environmental risk management, the aspects specific to environment-related regulations should be established prior to the bidding process and, where appropriate, negotiated at the time of signature of the contract. Any increased construction costs caused by

changes in environmental legislation during the life of the concession should trigger renegotiation of the contract between the two parties to define the amount of and procedures for indemnification of the operator by the concessioning authority.

4.1.2. Monetary Risk

In a country where the national economy is weak or unstable, macroeconomic problems or fiscal rules imposed by the host country create a risk, for both shareholders and lenders, that the project may be unable to generate sufficient income in strong currencies. The main monetary risks that can create this situation include:

- Exchange rate fluctuations.
- Nonconvertibility of the local currency into foreign currencies.
- Nontransferability (funds cannot be exported from the host country).

Where the project can generate foreign currency income, which is frequently the case when services are invoiced to foreign shipowners or shippers, the foreign exchange and convertibility problems can be easily overcome. The best way of hedging the transferability risk is for the operator to be paid via an account opened outside the host country (offshore account). Use of such accounts frequently requires approval by the local authorities. When an offshore account can be opened, exchange controls or the prohibition of the export of foreign currency from the host country would have no direct impact on the economics of the project. In this case, the monetary risk is not hedged, but eliminated. In the contrary case, where no authorization can be obtained to open an offshore account, other measures must be considered. The concessionaire should seek convertibility and transferability guarantees from the government or central bank. Decisions about such guarantees often become political issues.

As for the exchange risk, this can be partially hedged by ensuring that the majority of expenses are paid in local currency; for example, by rais-

ing part of the debt in the currency of the host country. However, frequently this is not sufficient; it is rarely possible to raise the required funding for large projects locally. Further, foreign investors must be remunerated in foreign currency. The latter also applies to part of the purchases and personnel expenses (expatriate personnel). Where conditions allow, hedging products (for example, exchange rate swaps) can be used to manage the exchange risk. If, on the contrary, such products do not exist due to the instability or weakness of the host country currency, the exchange risk represents a major problem as it can only be carried by the shareholders and lenders, unless an exchange rate guarantee can be obtained from the central bank of the host country. The latter solution can only be envisaged in the event the project is of critical importance for the host country. Such considerations again add a political element to management of exchange risk.

4.1.3. Economic Risk

Port activities form part of national and international transport chains. The volume of trade moving through these chains depends to a large extent on macroeconomic factors, namely population, consumption, production, exports, and so forth. Consequently, the macroeconomic situation and its expected evolution have a strong impact on the level of activity in a port. It is essential to take this element into account in the market survey conducted to estimate the traffic and throughput risk. The principles of traffic and throughput risk sharing are analyzed in a later section devoted to this topic.

4.1.4. Force Majeure

Force majeure generally covers all events outside the control of the company and events that cannot be reasonably predicted, or against which preventive measures cannot be taken at the time of signature of the contract, and which prevent the operator from meeting its contractual obligations. Apart from this general definition, examples of force majeure are generally stipulated in the contract, including:

- Natural risks, such as climatic phenomena (cyclones and exceptionally heavy rainfall), earthquakes, tidal waves, and volcanic eruptions.
- Industrial risks, fire, or nuclear accident.
- Internal sociopolitical risks, such as strike, riot, civil war, and guerrilla or terrorist activity.
- Risks of war or armed conflict.

In certain contracts, unilateral decisions by the local authorities can be included in the list of events covered by force majeure, in particular where such decisions discriminate against the operator.

These risks are included under country risks, as it is the national context that determines the probability of their occurrence. It is reasonable that if any such event occurs, it should result in the suspension of reciprocal obligations of the parties involved, with a resultant limitation (although not elimination) of their consequences. The contract can also include procedures for sharing the burden of the consequences of such events between the parties, in particular where the operator is managing a delegated public service.

4.1.5. Interference or “Restraint of Prices” Risk

Interference or restraint of prices risk covers those risks that relate to the direct intervention of the public authorities in the management of the project. Public service requirements are normally defined in contract specifications, and the concessioning authority should not, in principle, interfere in any way during the construction or operating phases, provided the concessionaire complies with these requirements. However, concessioning authorities frequently do intervene in the name of public service or for the protection of the users, for reasons of security, for the protection of the environment, or simply on an arbitrary basis. Such interference can take the form of the imposition of new operating requirements, additional investment, or new constraints, the result of which is to increase operating costs or reduce revenue.

Intervention by the government may be well founded, but the concessionaire can then legitimately expect compensation from the concessioning authority for the constraints imposed and indemnification of losses resulting from the concessioning authority's actions.

The best way of attenuating the interference risk is to have a contract that not only states unequivocally the objectives of the parties, but also specifies the limits on government authority to intervene. The contract may also include provisions that will obviate the need for arbitrary government intervention, for example, price escalation clauses or the obligation to increase capacity above a certain traffic or throughput level.

Clearly, it is impossible to foresee all events that might give rise to intervention by the government. Hence, it is a good idea to include contract provisions that call for periodic meetings to discuss the status of the contract and allow for renegotiation of the contract to account for significant changes in circumstances.

4.1.6. Political Risk

The operator cannot control the risks inherent in decisions taken by public authorities. The operator naturally seeks protection against harmful decisions through the clauses of the contract by transferring this risk to the concessioning authority. This is not sufficient, however, since noncompliance with the terms of the contract by the concessioning authority or the government is just one of the risks facing the operator. In addition, the approval of contracts or the issuance of authorizations from administrative authorities can cause delays and increase costs for the operator. Finally, the risks of expropriation and nationalization are also a danger. The risks of noncompliance, inefficiency or expropriation, and nationalization are grouped under the designation of political risk.

Apart from the detailed analysis of contractual commitments, there is also the problem of the credibility of the applicable legal system. The effectiveness of contractual commitments depends initially on the mechanisms available

for settling disputes. Recourse to international arbitration is desirable, involving a neutral jurisdiction applying recognized international rules, such as those of the International Chamber of Commerce. Likewise, the applicable contract law can be that of a mutually acceptable third-party country.

This purely contractual approach, while useful, is frequently inadequate to ensure the acceptable management of the political risk. In practice, the arbitration phase of disputes is rarely reached, but when it is, it reflects the degradation of relations to such an extent that the future of the project is very often threatened.

There are, however, other strategies for protecting against political risk. The inclusion of multilateral organizations, such as the World Bank or the International Finance Corporation (IFC), among the shareholders or lenders represents a form of protection for the operator. The presence of these institutions is not a formal guarantee, but governments generally seek to avoid antagonizing these important multilateral institutions by imposing measures that would upset the equilibrium of a project in which they are involved. Similarly, the financial involvement of sponsors or lenders from the host country can also serve to limit the political risk.

Another approach involves recourse to the export credit agencies such as COFACE in France or Export-Import Bank in the United States, which act as guarantors for the political risk during the loan period.

Actual insurance cover can also be obtained to hedge certain specific risks. Such policies can be obtained from both public insurers such as MIGA (World Bank Group) and private insurance companies.

Quantification of the political risk is always a delicate matter, and there are no reduction or hedging methods that make it possible to eliminate the political risk entirely. Thus, if the perceived political risk is great, and the ability to mitigate those risks is slight, the operator may opt to abandon the project.

4.2. Project Risks

Project risks are those risks associated with the investment in and operation of the resources required for implementation of the project by the operator as set out in the contract between the operator and the port authority. The majority of these risks are carried by the operator, who therefore manages and assumes their consequences.

Project risks include:

- Construction risks.
- Hand-over risks.
- Operating risks.
- Procurement risks.
- Financial risks.
- Social risks.

4.2.1. Construction Risks

Risks associated with the construction of the project involve unforeseen cost increases or delays in completion. A construction delay also translates into increased costs, principally for the operator, in one of several forms:

- Penalties the operator may have to pay to the concessioning authority or its customers under its contractual commitments.
- Delays in start-up of the operational phase of the project, causing a loss of earnings.
- Increased interim interest charges (interest due during the construction phase, most often capitalized).

In turn, the principal causes of excess costs or delays are:

- Design errors leading to the underestimation of the cost of equipment or work or the time required to complete the job.
- Inadequate assessment of local conditions (terrain in particular), which can necessitate modification of the original technical solution.

- Poor management of the job site, poor coordination of the parties involved, or the bankruptcy of a supplier or subcontractor.

These project design and management tasks are under the control of the operator, thus the operator should carry these associated project risks. The operator can then conclude a “design and build” type contract with the construction company so that it can be associated with the project from the design phase on and help shape the project for which it will be responsible. If not involved from the outset, the operator must analyze and accept imposed specifications (for example, basis of design), proposing alternative solutions or refusing certain aspects that it considers unacceptable, but may ultimately have to accept a less than optimal design (for which it will bear the consequences). Increased costs or delays caused by the government or concessioning authority are considered as country risks (for example, political, restraint of prices, or legal risks) rather than project risks. In particular, this is the case when the functional definition of the project is modified or when, subsequent to signature of the contract, constraints are introduced concerning the choice of technical solutions.

Hedging of excess cost increases and completion delay risks by the operator are generally undertaken simultaneously. A common method of managing these risks is to transfer them to the construction company or equipment supplier. When the project includes a major construction phase, the financial package generally requires the inclusion of the primary construction company among the project sponsors. The construction risk (and design risk where applicable) is then allocated to the shareholding construction company, enabling the nonconstruction company shareholders to avoid bearing a risk for which they have little or no control. Transfer of the risk to the shareholding construction company is achieved via the construction contract or the design and build contract. From the operator’s perspective, then, the objective is to bind the construction company in a lump-sum design and build a turnkey contract

that incorporates a performance guarantee and appropriate penalty clauses. This makes it possible to convert the construction risk of the project promoter into a credit risk for the construction company.

Careful selection of a technically competent and financially sound construction company makes it possible to reduce both construction and credit risks because of the assumed capacity of the construction company to honor its contractual, technical, and financial commitments.

It should also be noted that the sponsors of the project (future shareholders) and lenders to the project do not always carry the construction risk in the same way. The lenders will often call on the sponsors for a credit guarantee covering the construction phase, since the lender is protected by limited recourse for the operating period.

4.2.2. Hand-Over Risks

Hand-over risks arise when the operator takes over the management of existing infrastructure and facilities, including operation and maintenance, and in some cases must first begin rehabilitation work. The general rule is that the operator takes over the existing facilities at its own risk and peril. The operator is authorized to carry out prior inspection of the facilities to assess their condition and estimate the rehabilitation and maintenance costs to which it will be exposed.

Even with the ability to inspect facilities, it is desirable to include a clause in the concession contract to safeguard the concessionaire against recourse relating to events and conditions existing prior to the contract, thereby exempting the operator from resulting liabilities.

4.2.3. Operating Risks

The concessionaire operates the facilities necessary to meet its contractual obligations at its cost, risk, and peril. Consequently, operating risk is allocated entirely to the operator. Operating risk principally comprises:

- Nonperformance risk, which can lead to payment of penalties to the concessioning

authority and adversely affect commercial operations (for example, cause traffic levels to fall below expectations) and result in financial losses.

- Risk of operating cost overruns stemming from underestimating operating costs in the bid proposal (for example, omitting a cost category or making a defective calculation) or inefficient management of the project by the operator.
- Risk of loss of revenue not associated with a drop in traffic level; for example, as a result of the noncollection of revenue, fraud, or theft in a case where the operator has not complied with the procedures demanded by the insurers, and claims by customers or frontage residents.

Nonperformance risks can be minimized by selecting an operator with recognized experience in port and terminal management. Cost overrun and loss of revenue risks can be transferred to the operator through use of a fixed-price contract between the master concessionaire and operator (which may provide for escalation by application of an indexing formula), with the possible inclusion of a variable component designed to reward better-than-expected commercial performance.

Concessionaires and port authorities should avoid cost-plus-fee type contracts with operators because they do not transfer any of the risks.

Like the project construction company, the operator may become one of the project sponsors. This then makes it possible to associate the operator at the outset with the definition of the operating system and its cost, thus making the operator fully responsible for the aspects of the project for which it will subsequently carry the risks.

Such measures, however, do not eliminate the operating risk completely. The responsibility of the operator is necessarily capped. Furthermore, this approach in fact converts the operating risk into a credit risk for the operating company. The latter generally has limited initial capital, which will not exceed its working capital

requirement because it has no investment expenses. The responsibility of the operating company can then be covered by shareholder guarantees or a bond system.

In any case, the concessionaire should have the resources to manage this endogenous operating risk, and it is therefore logical that this risk be allocated to the concessionaire in full.

4.2.4. Procurement Risks

Procurement risks arise due to the potential unavailability of critical goods and services and unforeseen increases in the cost of external resources necessary for the project. This is significant for port projects since they often depend on public monopolies to supply critical services, for example for the supply of water and electricity.

Two approaches can help the operator to reduce or eliminate this procurement risk. The operator can choose to produce the critical resource itself. For example, the installation of a dedicated generator in a refrigerated container park or refrigerated warehouse makes it possible to reduce the cost of the resource in some cases and limit the risk of power cuts (which, in addition to simple interruption of the service, can cause damage to the merchandise). This solution often requires specific authorization from the local authorities. Furthermore, providing such goods and services oneself may not always be possible or financially feasible for the operator.

Alternatively, the operator can sign a long-term purchase contract with the producer of the resource. This makes it possible to set the purchase cost using a predetermined price escalation formula, and to limit the risk of a unilateral price adjustments or restrictions on supply. Further, the contract may include a clause to indemnify of the operator against losses incurred in the event of interrupted supply of a critical resource. This is referred to as a “put or pay” contract.

The concessionaire may require the assistance of the concessioning authority or the government

to be able to conclude a put or pay contract with the public monopolies concerned. This usually can be justified in cases where the project has a substantial public service dimension.

Where the procurement of imported supplies is concerned, the procurement risk can stem from customs-related problems; thus, it becomes a component of the country risk. In such cases, the concessioning authority may reasonably bear a portion of the risk.

4.2.5. Financial Risks

The operator bears all risks associated with raising the shareholders' equity or obtaining loans required for funding the project. Likewise, the operator carries all risks associated with formation of the project company (the special purpose company or SPC). Contractual documents define the relationships among the various private players involved in the project (for example, the shareholders' pact and loan agreement). Apart from raising the initial tranche of shareholders' equity and loans, the establishment of standby credit loans should also be considered because it makes it possible to fund any excess costs with which the project company may be confronted.

Likewise, the interest rate fluctuation risk is carried exclusively by the operator. This risk arises when loans used to fund the project are based on floating rates (for example, Euro Interbank Offered Rate [EURIBOR] plus margin). An increase in the reference rate consequently increases the amount of interest to be paid, and hence the project costs. This risk can be hedged by means of appropriate financial instruments (for example, rate caps, ceilings on variable rates, or rate swaps).

When projects are built or operated with the aid of subsidies, there is the risk that the government will fail to make good on its subsidy payments. This risk is relatively small where investment subsidies are concerned, as the construction phase covers a relatively short period. However, international agreements (for example, the Marrakech Accords) or the dictates of

internal law can still intervene to prevent the payment of subsidies.

4.2.6. Social Risk

The social risk arises when operators have to restructure the workforce and bear the cost of severance payments, retraining, and other employee issues. The risks of general strikes or civil disturbances in the host country are frequently classified as cases of force majeure (see country risk), which means that they are often only partially covered by the protections afforded in the contract. Additional insurance can be obtained to cover residual social risks.

The port sector presents special challenges relating to social risk:

- Dock workers often enjoy a special status under national law, which may put the operator in the diminished position of merely acting as an employer of hired labor. These special treatment situations are disappearing in some countries, but where they still exist they are a source of risk and excess cost for the operator.
- Port or terminal concessions, while requiring the operator to continue employing a portion of the existing personnel, often result in a very substantial reduction in the number of port workers (reductions of 50–70 percent are not exceptional). Although the port authority or government may give the concessionaire free reign to rationalize the port workforce, this alone is not sufficient to eliminate the social risk. The operator must also be assured that the local authorities have the capability to manage the social situation thus generated (for example, through retraining, early retirement, relocation allowance, or other program). Otherwise, displaced port labor may seek recourse against the concessionaire.

In addition to the social risk relating to dock workers, the presence in the port of other categories of personnel with special status (for example, seamen, customs officers, and port

authority personnel) can amplify the social risks. Module 7 describes port labor issues in depth.

4.3. Commercial or Traffic Risk

Commercial risks arise from potential shortfalls in projected traffic and from pricing constraints. Traffic and pricing risks are significant in port reform projects due to the high degree of uncertainty associated with medium- or long-term projections of port activity. These risks are affected by the operator's pricing decisions and by any price regulation imposed by government.

The nature of the partnership between the operator and the port authority leads, in practically every case, to sharing of traffic risk, both in terms of responsibility and consequences. The terms of the concession agreement effectively allocate these risks between the two parties. However, even though they are partners in port reform, there is a natural tension between the port authority as a custodian of the public interest and the operator as a profit-maximizing business.

When the number of customers using a port, a terminal, or other facility is limited, or when a small number of customers represents a major share of the activity, the operator can protect itself against traffic or commercial risks by means of establishing minimum volume guarantees. This is a long-term contract under which the customer undertakes to generate a minimum level of traffic and agrees to pay a fixed sum to the operator whether or not the service is required or used.

A terminal's main customers—shipping lines or large shipping companies—will frequently become project sponsors, much like construction companies or operators. In such cases, the customer-shareholder carries part of the commercial risk. However, this arrangement has a number of disadvantages, particularly the risk of discrimination against nonshareholder customers. Nonshareholding customers can guard against this possibility by entering into a minimum guarantee contract with the terminal operator (see Box 1).

Box 1: Richard's Bay Coal Terminal: A Wholly Private Terminal

South Africa is one of the world's leading exporters of coal. The seven most important mine operators in the country have funded, built, and now operate a huge coal terminal at Richard's Bay with exceptional rail access facilities to serve their export business. The terminal has no public service obligation and handles the traffic of its shareholder-customers on a priority basis. This places the small producers in a situation of dependence. They in effect are obliged to sell their production to large operators or use other, less competitive and more expensive ports (Durban or Maputo), or use the terminal as second-class customers.

Source: Author.

Regulation invariably generates costs. These include costs for the concessioning authority in the form of additional compensation it may have to pay to the concessionaire plus the direct costs of enforcing the regulations through inspections and other measures. Regulation also generates costs for the concessionaire, which bears greater risks and has less freedom of action than it would in the absence of regulation. Thus, the concessionaire will expect this higher risk level to be rewarded.

The costs of regulation are ultimately borne by the port users or by the taxpayer. Government regulation, therefore, should be kept to the minimum necessary to correct market imperfections and protect the public interest.

The nature and extent of government regulation in connection with port reform are many and varied. Ideally, the concessionaire and the port authority or other regulating entity can arrive at a compromise acceptable to both parties by adjusting regulation and the guarantees and compensation allowed to achieve equitable risk sharing. Because situations affecting port reform vary so widely, there is no single set of rules applicable under all circumstances. Instead, this section describes the different regulatory tools available to the port authority and identifies how each might affect the distribution of risk.

4.4.1. Regulatory Tools

Regulation often takes the form of specifications and performance standards included in the concession contract itself. These might be set by the concessioning authority in detail prior to the initiation of the selection procedure. Or, they might be defined only in broad terms, with the bidders required to provide details in their proposals (for example, maximum price levels, fee, or expected amount of subsidy to be received). In the latter case, these elements serve as a means for comparing the submitted bids, and then become the performance standards to be applied to the winning bidder.

Regulation by the concessioning authority can be classified as either technical or economic.

4.4. Regulatory Risks

The relationship between the concessionaire and the port authority or other government agencies is important in defining the rules of the game for the concessionaire and, hence, its risks.

The concessionaire generally desires to limit the scope of the vertical partnerships with the port authority, taking the view that operator activity should be regulated predominantly by market conditions. Consequently, the operator seeks greater freedom of action in the management of its project to be in the strongest possible position to manage risks.

The concessioning authority is concerned with protecting the user, safeguarding the general interest, and avoiding abuse of dominant market positions. The concessioning authority, consequently, seeks to restrict the operator's freedom of action through technical or economic regulatory measures.

The search for a fair balance between regulation imposed by the concessioning authority and the discipline imposed by the market is complex and effectively determines how the commercial risk will be shared (see Module 6 for a detailed discussion of economic regulation).

4.4.1.1. **Technical Regulations.** These regulations define the minimum technical requirements of the project. They establish a set of parameters within which the concessionaire must operate, and go a long way toward defining the risks to which the concessionaire will be exposed. Technical regulation includes regulation of investments, maintenance, and performance.

Regulation of investments. Regulating investments is necessary only when the operator is itself responsible for the execution of the project. The port authority may then choose to impose a number of regulatory measures:

- A functional definition of required capacity or traffic and throughput thresholds that would trigger new investments in capacity to ensure a minimum level of service (where market conditions might lead to undercapacity).
- Construction standards to ensure that the work is satisfactorily executed.
- Constraints or particular specifications relating to security or protection of the environment.

Oversight by the concessioning authority should be limited to the verification of compliance with the defined measures, and should not extend to the imposition of specific technical solutions, as long as the concessionaire meets the performance standards. Any requirement on the operator to obtain approval of various aspects of the project by the port authority, above and beyond these predefined standards, creates uncertainties that increase the concessionaire's risks. This makes it difficult for the operator to properly estimate future costs for the project, adding an element of risk for which the operator will seek compensation.

Tenders should not be judged solely on the basis of the amount proposed to be invested by the candidate. Indeed, making sure that a minimum amount is invested is not an end in itself (except perhaps for the construction company). Such one-dimensional measures can have adverse effects by possibly encouraging non-economic investment. It is preferable to impose

functional obligations and performance requirements on the operator and to leave to the ingenuity of the operator the task of finding the best way to meet those requirements.

Regulation of maintenance. Defective maintenance of port facilities creates three types of risks: commercial risk for the operator as a consequence of the deterioration in the level of service offered to customers, risk of default by the operator with respect to the public service obligations contained in the contract, and risk of deterioration of assets during the term of the contract. The commercial risk is properly borne by the operator, and poor service will be penalized by the market. No regulation by the concessioning authority is required to guard against this aspect of maintenance-related risk. The public service obligation, in particular the obligation for the operator to provide continuous service, typically is defined in performance requirements contained in the concession contract or subcontract with the operator. An interruption of service resulting from a failure to perform maintenance can then give rise to penalties.

In the case of a concession where assets are handed over to the port authority on termination of the contract, the need for regulation can go beyond a definition of functional obligations. It is normal for the concessioning authority to require that repair and maintenance work is correctly carried out to ensure that the installations are handed over in good operating condition at the end of the concession period. The concessioning authority can impose specific maintenance standards in the contract to ensure the satisfactory preservation of the assets.

Regulation of performance. Finally, where the lack or absence of competition is liable to discourage the operator from providing an adequate level of service, the concessioning authority can include specific performance standards in the concession contract, for example, minimum levels of productivity. While sometimes deemed necessary, this approach is not without difficulties, since it assumes that the concessioning authority:

- Is in a position to define and codify a level of service, whereas the content of the service and the required level of performance can change over time.
- Is capable of determining compliance by the operator with the set standards.
- Has the ability to apply either incentives or penalties when the performance objectives are exceeded or not achieved, respectively.

Beyond productivity criteria and service standards, performance standards can also include a minimum capacity for the terminal. These standards might be based on investment levels or on direct measures of storage and throughput capacity. Generally, it is preferable to permit the concessionaire sufficient flexibility to meet the standards in the most cost-effective manner (for example, extension of yard space versus the purchase of higher stacking equipment).

4.5. Economic and Financial Regulation

Virtually all concession contracts contain economic and financial provisions defining the scope of permissible activity, the minimum services required, the degree of competition the operator can expect, the freedom to set prices, and any fees or subsidies associated with the project. These provisions are designed to establish some level of certainty for the operator with respect to its flexibility to manage the project so that the operator can assess risks and ways to manage them.

4.5.1. Scope of Operator Activity

The concession contract should define the activities the operator is authorized to conduct in the area defined by the contract. The port authority will define this scope based on its reform strategy and operational needs. For example, the port authority may prohibit the operator from engaging in any activities other than the handling and storage of merchandise within the project's defined domain, or specify the types of traffic the operator will be authorized to handle. In the latter case, such limitation may be

the consequence of an exclusivity guarantee previously granted by the port authority to another operator in the port.

By restricting the scope of permissible activity, the port authority increases the commercial risk for the operator. With a narrow scope, the operator's capacity to adapt or diversify its activity in response to market changes is limited. On the other hand, the port authority could allow the operator considerable freedom of initiative and action to exploit port land and facilities in return for the operator's performing unprofitable public service activities.

4.5.2. Public Service Obligations

The port authority may require the operator to comply with principles governing the provision of a public service. This obligation typically imposes requirements for service continuity, with the assessment of penalties or early termination of the contract in cases where the service is interrupted due to the fault of the operator, and also requires equal access and treatment for users (nondiscrimination with respect to pricing, priorities, level of service, and so forth).

It is not always possible or desirable to avoid all discrimination among an operator's customers. For example, obliging an operator who is a subsidiary of a shipping line to serve other competing shipping lines under the same conditions as its affiliated company, irrespective of contractual stipulations, is unrealistic. This problem can and should be avoided when developing the concession bidding qualifications. Business affiliations of the bidder, and any restrictions thereon, should be taken into account when designing the concession and awarding the contract.

The principle of nondiscrimination among users does not prohibit prudent commercial management of the affected activity, including differentiation in tariff or pricing, berthing priority, and service levels, provided these are based on objective criteria such as annual traffic or throughput volume, the period of commitment of the parties, or the characteristics of call or

vessel, and provided these are applied uniformly to all similarly situated users.

4.5.3. Noncompetition Guarantees

Under certain circumstances it may be reasonable for the concessioning authority to grant the concessionaire a noncompetition guarantee to compensate for the imposition of strict regulation, if such regulation may deprive the concessionaire of the normal means available to a company for positioning itself in a competitive market. This type of guarantee is generally limited in time and terminates on a specified date, or when the level of traffic reaches a predefined threshold.

Although they can be useful in limiting a concessionaire's risks, we do not recommend creating monopolies *de jure* unless necessary, even if they are limited in time. Instead, we recommend that the concession contract provide for renegotiation in the event that the competitive situation significantly changes. Renegotiation may include a review of the regulatory clauses to adapt them to new market conditions. In certain cases, this could lead to the indemnification of the operator where the newly created situation calls into question the viability of the project.

4.5.4. Pricing Controls

The procedures for setting tariffs represent a critical element of the economic regulatory system. Prices and pricing flexibility affect the terminal's level of traffic and throughput and the profitability of the concessionaire's operation. Regulation of prices by the public authority affects the operator's flexibility in two key ways: the ability to negotiate the terms of service provided to the customer on a case-by-case basis or the obligation of the operator to publish a list of charges applicable to all users, and in the case of a published list, the ability to set the level of charges.

Operators should be free to set tariffs without significant government oversight when the market is effectively regulated by competition. Competition can come from another terminal in

the port, another port, or another means of transport (air, land, or coastal transport). Estimation of the true level of competition can be difficult (see Module 6 for a methodological approach). From the concessioning authority's perspective, the objective of price regulation should be to limit the risk of the operator abusing a dominant market position. As indicated above, when sufficient competition exists to discipline pricing, the tariff regulation need be nothing more than an obligation to treat all users on an equal basis and the requirement to publish a tariff.

Government oversight can also be kept to a minimum when the activity in question does not constitute a public service. This is the case where the operator only conducts its activity for its own account or on behalf of its shareholders. This is also the case where the port customers are not national economic units (for example, when they represent transit traffic or transshipment activity). The operator should then be free to negotiate charges with its customers on a case-by-case basis.

Pricing regulation is necessary, however, in other cases, namely when the operator provides an essential public service and is in a position of strong market dominance. Apart from the requirement of equal treatment of users and the publication of prices, in such cases the administrative authority may choose to establish a maximum charge (a price cap). This maximum charge can be set initially by the market, as the set of tariffs submitted by the terminal operator as part of the bid. The price caps are generally accompanied by price escalation formulas indexed to a set of economic indicators. However, these escalation formulas are generally applied only for a short term (for example, for a period of up to five years). Following that, periodic renegotiation of the price caps is required, which becomes another source of uncertainty and, hence, risk for the operator.

The problem of regulating public monopolies over the life of a long-term concession continues to be a subject of concern in industrialized countries.

Box 2: Port Réunion: A Single Container Terminal Using Several Handling Contractors

In common with the majority of island economies, Réunion does not generate sufficient traffic to justify more than one container terminal. The majority of the containers are consequently handled by a single container terminal. However, the containers are handled by a number of competing cargo handling contractors.

This has not prevented recourse to private investment or management. The resources required for these operations have been provided by an economic interest group comprising the cargo handling operators and other partners. The partners include the Chamber of Commerce and Industry, yard equipment owners, land storage management, and gantry crane owners.

Source: Author.

So far, no clear and fully satisfactory response has been produced. The problem is even more acute in the developing countries where regulatory oversight capabilities may be weak.

A radical approach to regulating such monopolies would be to recompute the entire concession at periodic intervals, at the same time setting new tariffs according to market conditions. But such a recompetition of the concession cannot be envisaged every five years. Moreover, a recompetition would also require the inclusion in the contract of provisions on equitable withdrawal conditions for the concessionaire, including concession repurchase clauses. These are generally based on the discounted value of anticipated profits from the concession through the original termination date. This amount depends directly on the tariff assumptions for the residual period.

Another approach might be to require the concessionaire to use several handling companies for the same facility, as in Réunion Island (see Box 2).

4.5.5. Fee or Subsidy

Vertical partnerships between the concessioning authority and concessionaire involve some form

of fees or subsidies. This constitutes another form of regulation, as the level of the fees or subsidies is closely linked to the tariff policy. The fees or subsidy mechanism typically has a fixed and variable component.

The fixed component can be a fee equivalent to a rent paid by the operator to the port authority for the use of land and facilities or utilities provided by the public sector. This fee also incorporates profit sharing, that is, the rental fee effectively includes an element to reward the concessioning authority for permitting the operator to profit from the operation of the terminal. Conversely, the fixed component can be a subsidy paid to the operator when the concession is acknowledged to be an unprofitable undertaking. This is a way of compensating the operator for providing essential public services. In this kind of concession, the subsidy level will usually be one of the main award criteria during the selection process.

The variable component of compensation to the concessioning authority can be a payment by the operator of a fee based on the level of activity. The variable component can also be an indexed subsidy based on traffic level. These same things include a minimum traffic threshold that can be used to share the traffic risk and indemnify the operator if the level falls below the predefined threshold. This latter approach may be most appropriate when there is significant uncertainty about the potential traffic moving through the terminal and when the concessioning authority desires to impose tight technical and pricing regulations.

Experience shows that these fee and subsidy levels and any escalation clauses should be decided as part of the concession contract and should be based on traffic levels rather than the degree of profitability for the operator.

The port authority could choose to set the initial levels for the fixed and variable components of subsidies or fees. However, these levels represent the most frequently adopted financial criterion for judging bids and, therefore, preferably should not be set by the port authority, but left for the bidders to propose.

4.6. Golden Share or Blocking Minority

Over and above the contractual conditions included in the bid specifications, the concessioning authority can retain a “right to know” concerning decisions taken by the concessionaire. The most commonly used techniques for this are to hold an equity interest in the project company and to hold a “golden share,” or blocking minority. This enables the concessioning authority to exercise oversight from within, but also can invalidate the risk sharing balance by introducing chronic interference by the concessioning authority in the management of the concessionaire company.

Despite its drawbacks, this form of government oversight is widespread. In over one-third of the privatized port terminals worldwide, the port or municipal authority owning the port also has an ownership interest in the terminal operator company (International Association of Ports and Harbors [IAPH] Institutional Survey, 1999). For example, in the case of Hamburg, the port (owned by the Hamburg regional government) has a majority interest in the operator company. This situation often gives rise to conflicts of interest between the shareholder and regulator roles of the concessioning authority, which tend to outweigh the perceived benefits of such a scheme. Control and monitoring of the concessionaire’s behavior generally is best carried out through a well-drafted concession contract, making proper allowances for the concessioning authority’s interest in reviewing certain strategic decisions of the concessionaire. This will safeguard the concessioning authority’s role as an impartial regulator with all its operators, which runs the risk of being compromised if it becomes involved as an equity holder in any of the private parties it is supposed to oversee.

4.7. Risk and Port Typology

Risk sharing and the extent of required government oversight can also be influenced by the nature of the terminal operations being concessioned. This section identifies several different

types of operations and the resultant implications for regulatory oversight and risk sharing.

4.7.1. Operator Handling Only Its Own Traffic

This method of operating is frequently encountered in the case of a terminal handling industrial bulk (ore or oil) and general cargoes (forest products or fruit). Under these circumstances, it is frequently the shipper, a group of several shippers, or the shipowner itself who serves as the operator of the terminal. This type of special purpose operation does not necessarily represent a public service, hence, it does not require systematic regulation by the port authority. Nevertheless, standards governing the maintenance of the facilities can be imposed for the preservation of the assets given in concession.

The administrative document formalizing the contractual relationship between the port authority and the operator of special purpose facilities merely needs to authorize the use of the site for the defined activity. A fixed fee is typically paid for the occupation of public land, and where appropriate, the provision of infrastructure or equipment by the public sector. Port dues billed directly to users (shipowners and shippers) by the port authority already generate remuneration for the use of the general infrastructure, and therefore would not be further billed to the terminal operator (see Box 3).

4.7.2. Operator Acting on Behalf of a Third Party in a Competitive Situation

In this case, it is desirable for the traffic risk to be carried in full by the concessionaire. This means that the concessionaire must be able to manage this risk by controlling the operating parameters affecting its competitive position. This assumes substantial freedom for the concessionaire in terms of investment, level of service, and the tariff, although some limited regulation may still be necessary to ensure compliance with public service obligations, preservation of public assets, and maintenance of minimum capacity. Because the market is regulated by competition, the tariff can be set freely. The

Box 3: Owendo Ore Terminal in Gabon

The Owendo ore port was built in 1987 to export manganese ore mined in Moanda Province. A number of agreements were signed at the time, including an agreement for the construction of the port and another for the use of public land and installations and the operation of private facilities. These agreements provide for the transfer of responsibility from the port authority to the private operator for maintenance of the facilities and dredging along the wharf, thus making the operator responsible for all maintenance and management of the terminal it uses. In return for the operator assuming these responsibilities, the port authority reduced the fee paid by the operator.

Source: Author.

Box 4: Container Terminals in the North European Range

The current situation in Northern Europe provides an example of genuine competition between different terminals in the same ports, and between the different ports of the Le Havre-Hamburg range. The high level of traffic, the opening of European frontiers, and the quality of the available land transport services support the existence of numerous container terminals, while providing shippers and shipowners with a genuine choice of port and operator. This situation allows the coexistence of public and shipowner-dedicated terminals.

This situation, however, is rarely the case in developing countries, where traffic is thin, border crossings are difficult, and intermodal connections are poor. Hence, the ports on the West African coast have virtually no competition.

Source: Author.

contract is awarded to the candidate proposing the highest rental fee or the lowest subsidy requirement, whichever is relevant (see Box 4).

4.7.3. Operator Acting on Behalf of a Third Party in a Monopoly Situation

This situation is relatively common in developing countries, particularly in African and insular

countries. The existence of a natural monopoly of the port terminal management activity undeniably introduces a public service dimension requiring close economic oversight. This can involve the setting of charges and awarding of the concession to the candidate proposing the highest fee (or lowest subsidy), or, alternatively, setting the amount of the fee (or subsidy) and awarding the concession to the candidate proposing the lowest weighted mean tariff rates. Price escalation and indexing clauses are essential in all cases.

There are several ways that traffic risk and profit can be shared between the concessioning authority and private operator. First, the concessioning authority can guarantee that the monopoly will be protected from competition for a specified time or until a specified traffic level is reached. The agreement may contain clauses providing for modification of the regulatory system or even indemnifying the concessionaire from completion of the contract should the monopoly disappear.

Second, the concessioning authority can guarantee minimum traffic levels when the volume of traffic forecast by the concessioning authority is regarded as highly uncertain by the concessionaire. When such uncertainties exist, the concession agreement typically limits the amount of the fixed part of the fee and introduces a variable part (reduction) if traffic fails to reach a minimum threshold to protect the operator from significant revenue shortfalls.

Finally, the concessioning authority and the operator can agree to share profits when traffic exceeds a specified volume (see Box 5).

4.7.4. Transit or Transshipment Traffic

Transit traffic refers to goods whose origin or destination is a country other than that of the port. Transshipment is the discharge of cargo or containers from one ship and the loading of them onto another in the same port (vessel-to-vessel). Both activities may have a positive impact on the economy of the country, generating opportunities for value-added activities, jobs, and national wealth.

Box 5: Container Terminal Operator in the Port of Klaipeda

The Port of Klaipeda in Lithuania has a new container terminal designed to handle import-export traffic as well as a high volume of (competitive) transit traffic between Western Europe and the Baltic States and Russia. Although the terminal was financed from public development aid funds (EIB), an operating concession was awarded to the German operator Eurogate in association with local partners.

Source: Author.

When the customer is not an economic unit in the country of the port, the government does not have the same interest in protecting the customer. Consequently, in the absence of any special agreement, there is little reason for the government to accept any of the risks associated with transit and transshipment traffic or to regulate economic activity by the operator.

In fact, the port may benefit from the operator's market dominance in handling transit traffic, which is disciplined by the existence of alternative transport systems (transit), the capacity of competing ports in the region (transshipment), and the degree of international competition. Under these circumstances, it is reasonable for the port authority to seek to obtain maximum profit from this favorable (although perhaps transitory) situation. In this case, the port authority charges an operator with the managing of this "natural resource" (that is, the country's geographic advantage) with the objective of maximizing spin-off benefits for the country.

Regulation of the activity is not required, apart from the actual authorization and an obligation to preserve existing assets where appropriate. There is no need to subsidize the activity nor to share commercial risks because they are fully carried by the operator. On the other hand, the port authority will seek to maximize its profit by awarding the concession to the highest bidder, namely the candidate proposing the most favorable profit-sharing arrangement (fixed and variable fee) to the authority (see Box 6).

Box 6: Port of Djibouti: Transit and Transshipment

The independence of Eritrea has deprived Ethiopia of its maritime access (ports of Assab and Massawa). Ethiopia is now landlocked. The recent conflicts between the two countries have made Ethiopia substantially dependent on the Port of Djibouti for its maritime trade. A lack of budgetary resources has led the Djiboutian authorities to seek private funding for the necessary development projects (for example, a cereal terminal). This project, based on the realization of a "situation rent," should achieve a fair yield for the investors. It will generate new revenue for the independent international Port of Djibouti and economic activity for the country.

The Port of Djibouti has long enjoyed a strategic situation in the container transshipment domain, this activity representing a significant proportion of its container traffic and resources. The Dubai Ports Authority now manages the Djibouti container terminal under a concession agreement.

Source: Author.

4.7.5. Mixed Situations

The situation frequently existing in ports is a mixture of the configurations described above, further complicating decisions about the procedures to be adopted. This leads to a hybrid approach, combining compensation systems, regulatory oversight mechanisms, and encouragement of "situation rents" (highly profitable operations in select activities to help fund a needed public service that might otherwise generate a loss) (see Box 7).

4.8. Other Concessioning Authority Guarantees

The existence of a horizontal partnership between the various players in the port community and its relationship with the transport chain was described earlier. The operator will often seek to combine the various services required by customers into an integrated whole or, alternatively, give contractual guarantees to customers as to the level of service provided in these various domains.

Box 7: Djibouti Fishing Port: Public Service and Semi-Industrial Activity

The Republic of Djibouti has constructed a fishing port to encourage the development of a small-scale fishing industry that can provide the country with new sources of animal protein for human consumption. Financed by public development aid funds (concessional loan from the African Development Bank), the port cannot be financially profitable on the basis of this small-scale activity alone.

However, the fishery resources of the region, combined with certain advantages granted to the country Lomé 4, make it possible to look toward the development of an export-oriented semi-industrial fishing activity. Furthermore, this project has led to the preparation of reclaimed, back-filled sites, a privileged location that will provide space for the development of various activities.

Placing the complete entity under concession could possibly enable the concessionaire to make a profit from the overall project, while meeting its public service obligations relating to small-scale fishing activities.

Source: Author.

Box 8: Horizontal and Vertical Partnerships in the Port of Maputo, Mozambique

In a horizontal partnership, the public port authority awarded a concession for the Matola Terminal to a private operator, with the goal of developing transit traffic for the export of coal from South Africa. As the admissible draught of vessels is a major strategic element for the operator, the contract stipulated that the port authority would maintain a minimum access channel depth. The concessionaire has claimed that the port authority has failed to meet this commitment, and has declined to pay the scheduled fee as a result.

In a vertical partnership, the port itself and the railway that serves the port are in the process of privatization. The port has been profitable while the railway has operated at significant losses. Separate privatization requires adjustments to balance the two concessions without raising doubts as to the global cost of the transport chain for customers. A solution under consideration involves the creation of a joint price regulation authority for the port and railway concessions.

Source: Author.

It is logical for the port authority to provide the operator with guarantees concerning standards of facilities and performance of services in the port (for example, depth of access, buoying, operating hours, and ship services), whether provided directly by the port authority itself or delegated to other service providers within the framework of a vertical partnership. These commitments, frequently grouped in a clause headed “concessioning authority’s obligations,” can result in financial penalties against the port authority in the event of failure to meet its obligations. The resultant commercial risk for the operator is then transformed, theoretically, into a credit risk for the port authority. Clearly, it is important for the operator to conduct a thorough analysis of the complete port community, its operations, and its reputation before committing to the project. Irrespective of the clauses included in the contract with the port authority, the operator will inevitably suffer the consequences of any defective operation of the port.

Likewise, while it may be useful to include guarantees regarding land transport modes (for example, hours of operation, access to carriers, creation of new infrastructure, maximum charge, or minimum capacity for a rail service), the quality of the intermodal service at the port is critical to efficient and cost-effective operation and should be analyzed before the operator puts in a bid (see Box 8).

4.9. Contractual Risks

Relationships between the port authority and concessionaire, as well as between the concessionaire and its suppliers, lenders, customers, and subcontractors, are defined in contracts. This section highlights the principal risks involved in the drafting and implementation of such contracts.

4.9.1. Contract Management

To protect both the concessioning authority and the concessionaire, contracts typically include

provisions governing the possibility of changed circumstances or disputes about contract implementation. The main elements of the contract governing such developments include:

- *Revision clauses:* At the outset of the project it is impossible to foresee all the events that might arise over a period of several decades. This means that revisions will be required to adjust the terms of the contract to changing situations. The conditions and procedures for these revisions must be defined, for example, periodic revision at defined intervals, revisions scheduled for key project dates, revision triggered when a particular throughput level is reached, or revision at the request of one or other of the parties.
- *Contract termination or renewal clauses:* The duration of the original contract period is a major risk consideration for the operator. The possibility for renewal or extension of the contract must be defined, as must the procedures for take-over or repurchase of the project assets on termination of the contract.
- *Early termination clauses:* These clauses define the conditions potentially leading to cancellation or early termination at the request of one party or another, and the applicable procedures relating to penalties or compensation. These clauses must also be compatible with the underlying loan contracts signed by the operator, where these agreements provide for a lender's right to substitute another operator in the event of the bankruptcy of the original operator.
- *Procedures for settlement of disputes:* Risks associated with disputes were addressed in the section on political risk management. The relevant clauses cover settlement out of court, the eventual intervention of independent experts subject to prior acceptance by the parties, and arbitration clauses (for example, place, applicable law, arbitrator, expenses).

4.9.2. Indexation Risk

Indexation formulas have been mentioned on a number of occasions in connection with changes in tariff levels, long-term contracts with customers or suppliers, operating contracts, and so forth. Indexing designed to enable the operator to cover or reduce certain risks (in particular the inflation risk) itself induces other risks, such as risk of significant deviation of real-world conditions from the indexation formula over a certain period and the risk of divergence between the indexing conditions of different contracts signed by the port authority and the operator (procurement, operation, and sale). The risk for the operator is that the indexing formulas can lead to an increase in costs that exceed the increase in revenue or the potential reduction in negative effects. The risk for the concessioning authority is that the operator's prices rise too high when competition is inadequate.

4.9.3. Credit Risk—Bonds

Sharing or mitigating the many risks associated with port projects frequently gives rise to contractual obligations and attendant financial sanctions if one party's or another's obligations are not met. Sanctions convert the risk into specific financial obligations (payment of penalties). This, in turn, generates the credit risk of the partner that is unable to meet its financial obligations.

The most efficient method of ensuring that the partners honor their financial commitments is to require bank bonds. These are frequently demanded from the concessionaire or by the operator from its private partners. The amounts and call conditions for these bonds must accurately reflect the respective commitments of the parties. However, the operator's credit risk with respect to the concessioning authority cannot be covered by bonds, and generally remains a political risk.

4.10. Approach of the Different Partners to Risk and Risk Management

Part A of this module has been largely devoted to analyzing the principles of risk sharing between

the public port authority (as the entity offering the concession) and the private concessionaire. This section looks in general terms at other aspects of risk sharing from the perspective of each party and the particular risks affecting it.

4.10.1. Concessioning Authority

The primary challenge for the port authority is to identify and define a balanced set of risk management measures. This requires expertise in numerous areas, which can lead to the use of specialist consultants. In addition to the terms of the contract concluded with the operator, which defines risk sharing between the port authority and the operator, the composition and characteristics of the sponsors raise major issues for the port authority in terms of:

- The capacity of the operator to comply with the terms of the contract.
- The degree of commitment of the various shareholders.
- The commercial positioning of the operator, with particular reference to the equal treatment of users or customers.
- The transfer of technology and the participation of national players in the project.

This means that the process for selecting the partner is a matter of prime importance for the port authority. Apart from selecting a partner who can meet financial objectives (for example, reasonable tariff levels, minimization of subsidies, and maximization of the fee), the port authority must also be able to select a reliable partner, one capable of complying with all the terms of the concession contract and capable of carrying all of its allocated risks.

Recommendations relating to the management of calls for tender are published by the principal international financial institutions (IFIs). These documents describe in detail relevant selection criteria and methods for achieving the satisfactory selection of candidates. The involvement of the IFIs in these privatization initiatives also may permit port authorities to avail themselves of additional assistance provided by these

entities. These sponsors can thus play the dual role of lenders and advisors to the concessioning authority.

Apart from the challenge of selecting the original partner, as time passes there is also an issue associated with the continued commitment of the shareholders. A particular risk arises if the initial shareholders decide to dispose of their interests in the project company to third parties that do not meet the expectations of the concessioning authority. This risk must be anticipated by appropriate contractual clauses.

4.10.2. Project Sponsors

Having first analyzed the risks of the project, the shareholders will logically seek to align the level of risk with the expected return on the operation. Their decision to become involved, consequently, depends on their assessment of indicators such as the project internal rate of return, investment coverage ratio, or return on equity.

However, apart from this determination, which is the same one every investor must make, each sponsor generally adopts its own particular approach according to its own agenda, enabling it to reduce this risk/shareholder return profile. For example:

- A constructor or equipment supplier seeks to maximize its return for the construction phase and through the upstream services it provides.
- An operator seeks a return on the facility management services that it provides.
- A customer, shipper, or shipowner looks for a high quality of service and reasonable rates over the long term.
- A financial investor is primarily looking for the sustainability of the project throughout the life of the investment period.

The agendas of the various sponsors can lead to different expectations in terms of concessionaire policy. This situation also creates major differences in each sponsors willingness to carry risk

or in the length of time over which they expect to earn a return. The concessionaire consortium clearly must manage possible differences in objectives among the sponsors; but these differences also concern the concessioning authority because they can lead to situations that are prejudicial to the general interest, for example, service continuity.

4.10.3. Lenders

The project's lenders primarily look for the project to have the capacity to repay its debts. They consequently adjust the amount of the debt and the repayment profile according to the annual and actuarial debt coverage ratios (see Part B of this module for a precise definition of these concepts).

Apart from these financial ratios, the lenders frequently impose other constraints on the sponsors to ensure their continued commitment throughout the defined repayment period. This stems partly from the fact that the loans are not (or are only partially) guaranteed by project assets (which tend not to be liquid in port projects), but principally from the cash flows forecast for the period of the loan.

The lenders, therefore, invariably call for a minimum equity investment on the part of the sponsors. Alternatively, lenders may consider the replacement of equity participation by subordinate debt (which presents the same advantages) as acceptable. Furthermore, reserves can be set up for the purpose of earmarking cash-flow surpluses for debt repayment, thereby preventing the shareholders from recovering their equity contributions before loans have been repaid. It is also rare for "nonrecourse" loans to be genuinely without recourse, and the lenders frequently impose guarantees on the part of the sponsors, particularly during the construction period.

The techniques adopted by the lenders to limit their risk also include other measures including comfort letters or commitments by the concessioning authority, domiciliation of revenue or debt, assignment of debt, and technical and financial performance bonds.

5. CONCLUDING THOUGHTS

It is not possible to cite universal principles for risk sharing in view of the widely varying characteristics and environments of port projects, but one important area to consider is the public service obligation. The public service dimension of port operations, which the public authority assigns to each port activity, is a core element in the process of defining and sharing risk.

However, the notion of public service is by no means universal. While some principles are constant, the definition of public service varies from one country to another, and does not remain constant over time even within a given country.

This variation, consequently, is a major consideration in the preliminary debate on the introduction of private management in ports. The delineation of public services is all the more delicate as the initial situation is frequently one of a stagnant public sector, often with limited capacity for clearly identifying the responsibilities that fall within the public service domain. For example, the activity of a port terminal operator cannot be qualified as a public service in all cases, and is more akin to a purely commercial activity in many instances. At the same time, the activity of the port terminal operator cannot be fully classified as to that of a commercial company, as the notion of partnership with the port authority is still present, although the levels of regulation and guarantees may be considerably reduced.

In a case where the public authority assigns this public service dimension to the activity, it is legitimate for the authority to retain careful oversight of the activity, while being free to delegate its actual implementation. The public authority might regulate the activity of the implementing entity to a greater or lesser degree, while the delegatee must reconcile the right of fair competition with the proper protection of the interests of users (or customers). This has complex implications for risk sharing, for which the procedures must be very carefully adjusted to achieve a fair balance, one that respects the objectives and constraints of the parties involved.

The main objective of this part of this module has been to describe various approaches for identifying risks involved in port reform projects and to suggest ways that these risks might be shared equitably among the interested parties. Part B of this module will introduce analytical tools and risk measurement options available for port authorities contemplating port reform.

PART B—PRINCIPLES OF FINANCIAL MODELING, ENGINEERING, AND ANALYSIS: UNDERSTANDING PORT FINANCE AND RISK MANAGEMENT FROM PUBLIC AND PRIVATE SECTOR PERSPECTIVES

6. INTRODUCTION

Concessioning authorities, concessionaires (SPCs), investors, lenders, and guarantors involved in port reform use a wide variety of economic and financial analytical tools and performance measures to evaluate the feasibility of prospective projects. Each party has a different perspective on what makes a proposed project a success and, consequently, may use somewhat different tools and measures. All measures, however, are designed to capture the economic value of the proposed project to the interested party, including an assessment of the likelihood that the full economic value will materialize (that is, taking uncertainty and risk into account).

Part B of this module provides a tour of the most commonly used analytical tools and measures of economic performance and risk to familiarize interested parties with the types of tools and measures that are used by their potential partners in port reform projects so they can better understand what motivates and concerns each of them. It will especially help government decision makers without a private sector finance background to appreciate the private sector's perspective on port reform and will permit them

to “speak the language” of their private sector counterparts. This, in turn, should help governments and concessioning authorities design port reform projects to be more attractive to the private sector.

7. MEASURING ECONOMIC PROFITABILITY FROM THE PERSPECTIVE OF THE CONCESSIONING AUTHORITY

7.1. Differential Cost-Benefit Analysis

Traditionally, economic assessment is based on a comparison of two solutions: a solution with a proposed project and a reference solution (that is, a solution without a proposed project). In the case of a proposed expansion versus a greenfield project, the reference solution corresponds to a solution in which the existing port infrastructure would evolve without modernization or expansion.

The assessment is based on a differential cost-benefit analysis. The costs and benefits are assessed in terms of economic value. This has a dual implication in terms of methodology:

- The project assessment framework must be calibrated according to the nature of the national economic entity in question: state, local authority, port community, and so forth. In other words, economic assessments must be carried out at several levels to ascertain to which economic entity the benefits of the project will accrue.
- The various costs and benefits must be considered net of all taxes (direct or indirect tax, customs duty, and so forth) and national subsidies, regardless of the nature of the national economic entity in question. The various taxes and subsidies correspond to monetary transfers between national economic entities and are therefore not to be taken into account in the national economic assessment of the project.

The assessment of commercial benefits and costs does not pose any particular valuation problem because their value is determined by the market. However, assessing noncommercial benefits and costs is more difficult.

7.2. Commonly Used Economic Profitability Indicators

Socioeconomic discounted profit or net present value (NPV). In the field of public investment and port investment in particular, the principal criterion on which the investment decision is based is the socioeconomic discounted profit. This criterion enables the intrinsic value of the project for the community to be assessed, and only projects with a positive discounted profit should be selected.

The discounted profit is defined as the difference between the discounted investment expenditure and the discounted value of the net benefits generated by the project during its lifetime. We also use the expression economic net present value or economic NPV.

For a project whose operations begin in year t , the discounted profit is calculated as follows:

$$\text{NPV Econ} = -C + \sum_{i=t}^{\infty} \frac{A_i}{(1+a)^i}$$

$C =$ Discounted investment cost

$a =$ National economy discount rate

$A_i =$ Benefits in year i

$t =$ Year in which the infrastructure is put into service

The discounted profit criterion enables government officials to decide on the appropriateness and interest of the project for the community. However, employing this tool does not provide any information as to the date on which it should be carried out. With certain hypotheses (for example, investment made at the beginning of a period, or net annual benefits increasing with time, unchanging chronicle of benefits

with time) it can be shown that discounted profit reaches a maximum for a certain commissioning date, referred to as the optimal commissioning date. If the project is carried out before that date, the community loses benefits. Conversely, once that date is passed, the project should be carried out as quickly as possible.

Internal rate of return or economic IRR. The (positive or negative) value obtained when calculating the discounted profit is an absolute value (as opposed to a relative value) that does not allow public decision makers to weigh the relative merits among several projects or variants. To permit this weighing of alternatives, another way of tackling the economic assessment of a project is to consider the value of the discount rate at which the net discounted profit is zero, or the economic IRR of the project.

The economic IRR is the solution r of the equation:

$$-C + \sum_{i=1}^{\infty} \frac{A_i}{(1+r)^i} = 0$$

$C =$ Discounted investment cost

$A_i =$ Benefits in year i

This second criterion enables us not only to assess the intrinsic interest of the project for the community by accepting only projects whose economic IRR is higher than the discount rate of the national economy, but also enables us to arbitrate among several projects or variants by choosing the one with the highest economic IRR.

Sensitivity studies. The economic assessment of a project is normally supplemented by a sensitivity study, which enables decision makers to ascertain the effect of changing a number of parameters on the value of the economic IRR.

By way of illustration in the port sector, we can test the effect of changes in traffic levels, investment costs, operating costs, and cargo handling productivity on any project's discounted costs and benefits.

7.3. Assessing the Economic Costs of the Project

Assessment of market economic costs.

Traditionally, the market economic costs of a project consist of investment costs, maintenance and operation of equipment, and materials used in each solution (that is, the solution with the proposed project and without the project). In the case of a project to expand an existing infrastructure versus a greenfield project, the costs to be considered in the reference solution account for the normal expenses necessary to maintain the operating life and the normal safety conditions of port equipment and structures.

The inventory of project costs includes induced infrastructure costs, such as the new land service networks required by the project. For example, a greenfield project often requires the building of a new access road, for which the investment cost to the community can sometimes be higher than the cost of the port project itself.

Assessment of nonmarket economic costs. The inventory of project costs must also take into account “nonmarket” economic costs. In the port sector, these include but are not limited to:

- The costs related to transferring traffic from one transport route to another (for example, if several ports are competing within the same country).
- Possible effects of the project on town planning (particularly traffic congestion).
- The impact of the project on the environment and safety (for example, marine pollution, nuisance to locals, and pollution resulting from handling bulk cargoes).

Assessing these economic costs is a particularly difficult exercise, but one that is essential to determine the economic rate of return of a project.

Assessing the economic benefits or positive externalities of the project. The economic benefits of a port project can be analyzed as an increase in real revenue for the various elements of the national economy. They can take the

form of a direct increase in national added value corresponding to an increase in the wages created by net job creation, or an increase in company profits (new activities whose development depends on the realization of the project). Another benefit is a price reduction translating into an increase in real income for consumers and an increase in profits for companies. This covers, for example, reductions in ship turnaround times resulting from improved handling efficiency (theoretically leading to a fall in freight rates), benefits from economies of scale, lower insurance costs, reduced cargo inventory costs, lower inland transport costs, and more.

The benefits can theoretically affect all national economic agents who, in some way or another, are concerned with the production, marketing, transport, and handling of goods passing through the port in question.

8. RATING RISK FROM THE PERSPECTIVE OF THE CONCESSION HOLDER

8.1. Financial Profitability and “Bankability” of the Project

Once the risk allocation chart between the public and private sectors has been produced, as described in Part A of this module, the private concession holder will then seek to quantify and price the residual risk of the project that must be borne. This risk is assessed by producing a country and project rating. Once this first stage is carried out, rating the risk is then defined by setting a minimum financial profitability threshold for the project below which a private concession holder will refuse to commit itself. In other words, the more risk associated with the project by the concession holder, the higher the required project profitability.

It is within this framework that one analyzes the financial profitability of the project. The financial analysis is designed to determine the conditions under which the proposed project can respond to market requirements, which usually vary with time, or in other words, determine the bankability of a project. In terms of

methodology, the financial profitability of a project is determined by forecasting the cash flows generated by operation of the project. This aspect will be developed later in the section on financial modeling.

The calculation of the financial profitability of a project does not take into account the envisaged financing structure. In practical terms, only operating cash flows (calculated after tax and duty), consisting of investment and operational flows, are considered. Taking the predicted financing structure into account in the project's forecasted cash flows would result in accounting for them twice. The purpose of this first stage of the financial profitability analysis is to decide whether it is interesting for the private concession holder (sponsors and banks) to continue the analysis of the project from a financial point of view. In fact, a financially unprofitable project at this stage will not become profitable regardless of how it is financed.

This economic model of the prospective project, described later in this module, is usually produced by the sponsors in collaboration with the financial advisors (merchant banks or specialist agencies). The economic model should not be confused with the economic analysis carried out by the concessioning authority as described above.

8.2. Assessing the Project Risks by Producing a Rating

Part A of this module presented the principles for allocating and managing risks between the concessioning authority and the concession holder on the one hand, and between the concession holder and the sponsors or lenders on the other. The method used, inspired by the logic of the banking analysis of project financing, consisted of:

- Drawing up a list of risk types: for example, country risks and project risks.
- Distributing the risk to the party best able to assume it, for example, concessioning authority, sponsors, lenders, customers, suppliers, or subcontractors.

- Reducing the exposure of the SPC or the likelihood of the occurrence of a residual risk.

The next stage consists of quantifying the residual risk that will be borne by the SPC. This risk is assessed by producing a rating. There are two types of ratings: a country rating to quantify the risk attached to the project's background and, therefore, to establish whether the country risk is acceptable to the market, and a project rating, a project risk assessment through the establishment of a checklist, which establishes whether the intrinsic risks in the project were correctly handled by the sponsors.

There are numerous country risk assessment methods. Box 9 presents the method developed by Nord Sud Export (NSE), which acts as an adviser to the French insurance company COFACE (Compagnie Française d'Assurance du Commerce Extérieur) in its country risk assessment process.

The project rating checklist, established following the principles spelled out in Part A of this module, is included as an annex to this document.

8.2.1. Commonly Used Financial Profitability Indicators

The purpose of financial profitability indicators is to determine the conditions under which the proposed project is financially justified. There are four main measures used to assess a project's financial viability: payback, IRR, NPV, and investment cover.

8.2.1.1. Payback Time. The payback time, or the time required for a return on investment, is the first indicator enabling investors and operators to assess the financial profitability of a project. It is measured by relating the value of the investment to the average annual cash flow.

$$T = \frac{I}{R - C}$$

T = years to pay back investment

I = total investment

Box 9: The Country Ranking Developed by Nord-Sud Export

The country ranking process by Nord-Sud Export (NSE) ranks a hundred or so emerging economies according to market opportunities and the risks the individual countries may represent for international operators (industrialists, bankers, or insurers), either for mere export operations or for investments. This ranking is made possible thanks to an objective rating system based on more than 100 criteria, coming out of a database developed by NSE over 18 years.

What Is Included in the Country Risk?

Strictly speaking, the country risk concept includes three main kinds of risks:

- The political risk, which may affect property rights through confiscation, expropriation, or nationalization, with or without compensation, through contract or debt repudiation.
- The transferability risk, when a country's central bank cannot convert resources in local currency into international means of payment.
- The payment risk for governments themselves, or for public enterprises, when the public buyer or debtor does not meet its financial commitments.

These three risks make up the basis of the country risk, that is:

- For lawyers, the act of government, knowing that recourse against a foreign government is for all practical purposes a very difficult undertaking.
- For bankers, the sovereign risks, knowing a sovereign guarantee often constitutes the financial safety scheme.
- For insurers, the political risks, knowing those risks can be interpreted as catastrophe risks, and as such should be covered by specialized insurance companies acting either on behalf of governments or within the market reinsurance framework.

Country Ranking Methodology Proposed by NSE

NSE developed a two-step methodology: a rating of risk factors identified and distributed by categories, and use of weighing coefficients for each identified risk factor.

Rating of Country-Risk Factors

The country risk assessment is established based on the following classification:

Parameter 1: Sovereign financial risks

- Importance of public debt and debt service (6 criteria)
- Sovereign default risk (6 criteria)
- Inconvertibility risk (3 criteria)

Parameter 2: Market financial risks

- Command of fundamental economic balances (5 criteria)
- Exchange risk, sudden currency devaluation (4 criteria)
- Systemic risk and economic volatility (6 criteria)

Parameter 3: Political risks

- Homogeneity of the social fabric (4 criteria)
- Government and regime stability (7 criteria)
- External conflicts (4 criteria)

Parameter 4: Business environment

- Conditions for foreign investments (6 criteria)
- Labor conditions (4 criteria)
- Good governance (5 criteria)

Weighing of the Risk Factors

There cannot be any country ranking without weighing of the risk factors. The exercise is all the more difficult to carry out when there are about 100 criteria to assess. Furthermore, the specificity of NSE's country ranking method is to provide for a differentiated weighting system depending on whether a country is being assessed from an exporter's standpoint (taking a risk for less than 18 months), or from an industrial investor's standpoint (local long-term development). This leads, therefore, to proposing two specific weighing systems.

One needs to know how to make good use of country rankings, which can lead to questionable results for at least four reasons:

- It is hazardous to compare countries as different as South Korea and Egypt, for instance, speaking of countries within the newly industrialized economies.
- Country ranking methods mix various risk factors according to a necessarily subjective weighting system.
- Most country rankings are made after experts' assessments, and therefore reflect more their own perceptions of the risks involved, rather than the sheer reality of the countries.
- Finally, country rankings have as an objective to deter commercial operations in countries deemed to be—objectively or

Box 9: The Country Ranking Developed by Nord-Sud Export (Continued)

subjectively—high risk, when no country ranking system is able to foresee events of a revolutionary type. As a result, most country ranking systems have to go through sudden and ex post downgradings, an impediment to effective decision making. In other words, it may be questionable for a company to decide on long-term commitments only on the basis of country rankings, which, by definition, offer only limited reliability.

Source: Jean-Louis Terrier, NSE Founder.

R = average annual operating income

C = average annual operating costs

$R - C$ = average annual operating cash flow

Other things being equal, an investment project will be more interesting for the private investor if its payback period is shorter. A high value for T reveals, among other things, the need for long-term financing and introduces great uncertainty.

8.2.1.2. Project IRR. The advantage of the IRR is that it does not rely on the notion of average year cash flow, which can be dangerous in the case of income and costs that are very changeable with time.

The project IRR is the solution r of the equation:

$$\sum_{i=1}^n \frac{-I_i + R_i - C_i}{(1+r)^i} = 0$$

I_i = amount invested in year i

R_i = operating income in year i

C_i = operating costs in year i

$R_i - C_i$ = operating cash flow in year i

n = length of concession contract

The higher the value of r , the more interesting a project will be from the financial point of view.

8.2.1.3. Project NPV. A third indicator of financial profitability is the project NPV. A project will be considered insufficiently profitable from a financial point of view if the obtained project NPV is negative. The NPV value is an absolute figure that does not allow for comparisons among several projects or variants. Because of this shortcoming, it is generally appropriate to calculate the investment cover ratio as well.

$$NPV \text{ Proj} = \sum_{i=1}^n \frac{-I_i + R_i - C_i}{(1+t)^i}$$

I_i = amount invested in year i

R_i = operating income in year i

C_i = operating costs in year i

n = length of concession contract

t = project discount rate

8.2.1.4. Investment Cover Ratio. The investment cover ratio (ICR) compares the project's discounted cash flows to the total of the discounted investments.

$$ICR = \frac{\sum_{i=1}^n \frac{R_i - C_i}{(1+t)^i}}{\sum_{i=1}^n \frac{I_i}{(1+t)^i}}$$

The factors are the same as those used in calculating the project NPV.

A project will be considered profitable from a financial point of view if its ICR is greater than one. This is a variant of the previous indicator, but it has the advantage of providing a relative value, thus enabling investors to compare the results of several projects or variants.

8.3. Project Discount Rate—Cost of Capital

Apart from the rate of return on investment (the payback method), the other three measures of profitability noted above take into account performance over a project's lifetime. These methods require the use of a project discount rate based on

the notion of the time value of money. This rate can be used directly in the formula (project NPV and ICR) as well as indirectly (comparing the project IRR obtained to the project's discount rate). The concession holder, therefore, requires an accurate value for the project discount rate. In financial analysis, the profitability of an investment is measured against the cost of the financing required to own the resources placed under the company's control. In other words, it is the cost of capital (weighted average cost of capital [WACC]) that gives a true measure of the project's discount rate.

Traditionally, the cost of capital represents the weighted average cost of all the financial resources invested in the project and is measured as follows:

$$WACC = [(1 - g) \times r_e] + [g \times r_d]$$

g = financial gearing or leverage or the amount of the financial debt in relation to the total financial capital

r_d = cost of the financial debt or the financial debt remuneration requirement

r_e = cost of equity (the return on equity requirement)

In the next section, the remuneration requirements of the various private capital providers (lenders and sponsors) will be analyzed, including the determination of both r_d and r_e .

8.4. Financial Debt Remuneration Requirement

The financial debt remuneration requirement relates to the yield to maturity of the financing. It is the discount rate that cancels the present value of the sequence of expenses created by this financing. It therefore incorporates all the elements of the cost of finance, that is, the interest rate of the loan and all the fees charged in setting up the loan. If there are no fees and expenses, the yield to maturity is the same as the interest rate.

The yield to maturity engendered by the flow sequence $[F_0, F_1, \dots, F_N]$ is the solution for the rate r of the equation:

$$\sum_{i=1}^N \frac{F_i}{(1+r)^i} = 0$$

There are four fees usually charged by lenders in financing projects:

1. An arrangement fee (up front commission) to pay for the time spent in studying and setting up the dossier.
2. A participant's fee to pay for the time spent in studying the dossier.
3. A commitment fee designed to pay for the commitment to make unused funds available in the future (for example, the cost of a forward rate agreement).
4. An agent's fee, which pays for the administrative work consisting of checking and applying the loan agreement and managing credit flows (draw downs or repayments).

The interest rate is expressed as follows: interest rate = base rate + bank margin. The bank margin is known as the "spread." It is usually fixed and determined when the loan agreement is signed.

The interest rate may be any of the following:

- In the case of a fixed rate loan, a reference rate such as the return on treasury bonds of the country of the currency concerned.
- In the case of a revisable or variable rate loan, a reference rate quoted in a financial market such as EURIBOR or LIBOR (London Interbank Offered Rate).
- In the case of an indexed rate loan, the procedures for changing the base rate are laid down from identified parameters (for example, inflation).

It should be remembered that a rate is said to be "revisable" if the reference is predetermined; in the bond market, the coupon relating to a period (paid at the end of the period) is known at the beginning of the period. Also, a rate is said to be "variable" if the reference is postdetermined; in the bond market, the coupon relating to a period is not known until the end of the period.

8.4.1. Inflation

Real and nominal interest rates translate the cost of money at a given moment in time, for a specific period, and in a specific financial market place. The nominal interest rate initially represents the sum of the real interest rate and expected inflation. The real interest rate therefore represents the cost of the money excluding all monetary erosion. The relationship between the real and nominal interest rates is given by the following formula:

Within the framework of assessing financial

$$1 + \tau_{\text{real}} = \frac{1 + \tau_{\text{nominal}}}{1 + \tau_{\text{inflation}}}$$

profitability, the rate used for the initial approximation is the nominal interest rate.

8.4.2. Risk Rating by Determining *rd*

The financial analyst faces the difficult problem of translating the risk, established by means of the project rating, into a remuneration requirement. That is, the analyst must determine the risk premium, or the spread attached to the project for the lenders on the understanding that there are no guarantees other than the cash flows produced by the project.

The spread is established by the lenders and accounts for:

- Intrinsic characteristics of the loan (maturity and repayment terms).
- Sovereign risk assessment.
- Diversification policy of the bank's asset portfolio.
- Liquidity level in commercial banks when the financing is being structured.

8.4.3. Debt Remuneration Requirement Conclusion

Based on these various elements, it becomes a relatively easy task to determine the financial debt remuneration requirements. However, these largely theoretical calculations must not

lead one to lose sight of the fundamental objective of commercial banks to not get “stuck” with a high level of commitment above the ceiling allowed by their management board and defined within the framework of their own development and risk management policies.

Since the beginning of the 1980s, deregulation of financial activities has occurred contemporaneously with an increase in market volatility and competition between financial establishments. This situation has contributed to the development of assets and liabilities management as a stand-alone function in the banking world. Traditionally focusing mainly on development of commitments and increases in market share, commercial banks have come to appreciate the need to enhance their balance sheet value and their operating margins.

The decision on whether to invest in a specific project thus has to meet all these considerations, largely intrinsic to the company and generally unknown to the other private partners in the project. And when a positive decision is reached, it is not unusual to notice significant differences in the remuneration levels required by different banks. This underscores the theoretical nature of the approach described above and illustrates the complexity of the job of the financial analyst assigned to this kind of project.

8.5. Equity Remuneration Requirement

Assessing the equity remuneration requirement in a port project is a difficult exercise. Undoubtedly the most commonly used approach in financial analysis is the capital asset pricing model (CAPM), which is used in assessing the risk-profitability profile.

The equity remuneration requirement, *re*, is given by the formula:

$$r_e = (r_f + \beta_e (r_m - r_f))(1 + \alpha)$$

re = equity remuneration requirement

rf = risk free rate

β = equity beta parameter representing sensitivity

r_m = market rate

$r_m - r_f$ = market risk premium

α = sovereign risk factor

This method is based on the strong hypothesis that the risk in any financial security can be broken down into two categories: market risk (systematic or nondiversifiable risk) due to a set of factors exogenous to the company (for example, changes in the economy, tax system, interest rates, inflation), and specific risk (intrinsic or diversifiable risk) due to a set of factors endogenous to the company (all the risks previously mentioned under project risks).

The CAPM translates the fact that the profitability required by an investor is equal to the risk-free money rate plus a security risk premium, that premium being equal to a market-risk premium multiplied by the security's volatility factor. The market risk premium measures the difference in profitability between the market as a whole and the risk-free asset. The current level market-risk premium in France is in the region of 3–4 percent.

There are two questions that are essential for a financial analyst involved in a port privatization project to pose:

- How does one translate a risk quantification (achieved by establishing the aforementioned ratings) to an equity and quasi-equity remuneration requirement? In this regard, what should be the risk premium attached to the equity supplied by the project's sponsors?
- What dividend payment policy should be recommended? In other words, how does one reconcile the necessarily antagonistic objectives and interests pursued by the lenders and shareholders (who want the cash flow from the project to exceed the term of the loan) on the one hand, and between the sponsors and the SPC, on the other?

These are complex questions requiring complex answers. As far as the risk premium is concerned, it is generally determined following normative approaches. These approaches consist of determining the beta parameter for each of the sectors the project sponsors are involved in (contractors, terminal operators, cargo handling companies, shipowners, shipping companies, and so forth) and comparing them to the parameter generally assigned to a port operating company. The value assigned to the project, called asset beta, should logically be the highest value uncovered in this process. Finally, the determination of the equity beta stems from the difference that could exist between the specific financial structure of the project (as determined by the SPC) and the one observed in the normative approach.

“Differentiated” remuneration requirements depend on the type of shareholder. It should be remembered that the expected remuneration requirement levels of the project differ depending on the type of shareholder concerned. This fundamental point can be explained by the different outcomes sought by the various sponsors involved in the project:

- Constructors or equipment manufacturers will seek to maximize their margin in the sale of the works contract to the SPC.
- The operator will seek to maximize its margin in the downstream supply of management services.
- The customer (shipper or shipowner) will seek a high quality of service in the long term and a maximum reduction in the cost of using the port.
- The pure investor will primarily seek the maximum financial return on investment in the project.

There is also the difficult problem of differentiating the remuneration requirement for the pure investor and the other types of sponsors, with respect to which the SPC represents only a fraction of their objectives in the project. Generally speaking, discussions relate to the optimal time

for the pure investor to place its capital with the SPC, given a traffic risk may be experienced. In this regard, should the investor come in as early as the project set-up stage, at the beginning of the operating stage, or when the operation of the investment has shown its ability to produce sufficient revenue?

All of these questions, which are of interest not only to the concessioning authority but also to the lenders, are at the heart of the discussions surrounding the financial analysis of the project.

8.5.1. Sharing of Public-Private Financial Commitments: Arbitration between Financial and Socioeconomic Profitability

If the project offers both a positive discounted socioeconomic net benefit and project NPV, it should be carried out because it is favorable for the community and the concession holder alike. Conversely, when both discounted socioeconomic net benefit and project NPV are negative, the project should not be carried out. These are fairly straightforward outcomes leading to relatively straightforward “go no-go” decisions.

The real challenge is how to reach a reasonable decision when the operation is profitable from the socioeconomic point of view but not from the financial point of view. With port projects this is the most frequent situation given that port infrastructure investments are discontinuous or “lumpy,” with a long working life. They must therefore be designed from the start to their definitive size, even if port traffic only builds up gradually.

As a result, it is not unusual for the government to contribute to the funding of a project. This constitutes the value of the project to future generations, which is often difficult to ask the customers of the present generation to bear without running the risk of increasing the cost of using the port to such a level that the port loses its competitiveness. Even though proper remuneration of the benefits offered within a reasonable economic life of the project should be the rule, depreciation and remuneration of the government’s contribution over a longer

period, commensurate with the life of the long-term assets it financed, should not be seen as a departure from this principle. It would obviously be different if the capital market offered financing on a cycle equal to the investment cycle existing for port projects (25 to 50 years). This, however, is not the case today.

In conclusion, the financial constraints imposed by the market on this fragile public-private partnership often leads to a sharing of financial commitments between the concessioning authority and the concession holder. The search for an equitable split is based on the need to balance the socioeconomic profitability of a project and the financial profitability.

9. FINANCIAL PROJECT ENGINEERING

Capital markets are highly diversified. Whether one should use such a source of finance is dependent on many criteria, such as its cost, the type of assets to be financed, the guarantees required, flexibility of use, and conditions of acceptability by the financial market. The financial engineering of a project consists of seeking out the optimal terms and conditions of finance and cover for the project based on analysis of the financial constraints and risks of the market.

Implementing financial engineering is a sensitive and complex exercise, sensitive because of the commitment of the financial partners over periods that can be very long, complex because of the multiplicity and increasing sophistication of the financial tools available in the market. It is also essential to understand that the financial project engineering must first and foremost conform with a pragmatic logic that is dictated by common sense and a thorough understanding of the issues. It should not be based on a desire to use sophisticated finance and cover mechanisms for their own sakes.

9.1. Financial Structuring within the Framework of a Project Finance Set-Up

Once the financial profitability of the project has been determined, the SPC must define the

structure of its liabilities, that is, the value of its equity and quasi-equity and the value of its debts.

In project financing schemes, the structure of the SPC's liabilities directly stems from the project's ability to service its debts. The main measures being used in this respect are:

- *Capital structure ratio:* The most commonly used ratio to ascertain the financing structure is: $(\text{equity} + \text{quasi-equity}) \div \text{financial capital}$. Financial capital covers all of the financial resources invested and placed under the company's control by the capital providers. In other words, it includes permanent financial resources (equity and quasi-equity + medium- or long-term financial debts) and bank advances (short-term financial debts).
- *Annual debt service cover ratio:* The ADSCR is calculated as: $\text{ADSCR} = \text{available cash flow for servicing the debt} \div \text{annual debt service}$. This ratio is calculated each year and therefore provides a continuous view of the project's ability to service its debt. It also enables the debt repayment profile to be changed if the values obtained reveal too high a disparity during the finance cycle.
- *NPV debt cover ratio:* The average of all the annual cover ratios, known as "average debt cover ratio" is also used by some analysts. This ratio enables, among other things, a comparison to be made between several methods of paying off the loan and provides a global view of the economics of the project.

These three ratios enable one to assess from the outset the amount of the debt with limited recourse that is acceptable to the banks. From this flows the amount of equity and quasi-equity required to finance the project.

If the shareholders' aim in financing the project is to enable the project to benefit from a nonrecourse or limited recourse loan, then this means that the repayment ability of a project may be

less than the amount of external finance that the shareholders wish to obtain. In this case, the loan will be split into several tranches differentiated according to the degree of recourse the lenders want to be granted with respect to the project shareholders; this is called subordinated debt or mezzanine debt. In this case, these financial resources are considered to be the same as the partners' current accounts, namely quasi-equity.

But, as always happens in financial analysis, the discounted value of a series is preferred to its average value because the time value of money is taken into account. For this reason, we prefer the NPV DCR, which is defined as follows: $\text{NPV DCR} = \text{NPV of cash flow available for servicing the debt} \div \text{outstanding debt}$. The discount rate used in calculating the NPV is that of the average interest rates of the financial debts. As regards the period over which the NPV is calculated, there are two possibilities: the length of the financing cycle, in other words the length of the loan (the loan life cover ratio [LLCR]), or the length of the investment cycle or concession contract (the project life cover ratio [PLCR]). If the debt is not repaid by the time the loan agreement expires, subsequent cash flows will be used to pay it off.

What are the minimum requirements for these ratios in the case of a port project? In practical terms, it is difficult to suggest precise thresholds for the foregoing ratios that could apply to all projects. However, it seems reasonable to state the following, as far as project financing in Organisation for Economic Co-operation and Development (OECD) countries is concerned:

- A capital structure ratio below 15 percent would likely lead the lenders to demand an increased equity or quasi-equity contribution from the sponsors as a token of their commitment to the project.
- An annual ADSCR below 1.3 would inevitably require restructuring of the financing set-up, likely along the lines of an amendment of the loan amortization profile.

- An NPV DCR below 1.7 would run the risk of deterring any potential private investor; the project would then require an increased public financial contribution to make it viable for the private partners.

These thresholds are given only as potential indicators and do not apply to all cases, nor do they take into account the country risk factor. Clearly, their final assessment is contingent upon the overall project risk analysis described in Part A of this module.

9.2. Debt Structuring

Debt markets are highly diversified. Consequently, in complex transactions, debt is often broken down into several tranches (segments) of different loans. The aim of structuring the project's debt consists of seeking the optimum finance conditions for each of these tranches to reflect the requirements of the project's various financial partners.

Debt financing is usually defined by a set of intrinsic characteristics. The four main ones are:

- *Length or maturity of the loan:* The date on which the last repayment of the loan or the tranches of the loan has to be made by the SPC.
- *Availability period:* The closing date of validity of the loan, which limits the lender's undertakings in time.
- *Loan repayment terms:* The repayment of a loan must be tailored to the project for which it was set up. There are three types of repayment profiles generally used:
 - ~ Equal installments of principal.
 - ~ Equal installments of interest and principal.
 - ~ Installments depending on the available cash flow.

Some terms include deferred repayment or a grace period, which means that over a certain period (rarely more than two years) the borrower pays only interest to the lenders. Deferred repayment may prove necessary for projects in

which the ability to generate operating income significantly lags behind project costs. This is usually the case with greenfield port projects.

- *Average length and loan duration:* The average duration of a loan is usually used as an instrument of comparison when the loan repayment profile is dependent on available cash flow.

The average duration of a loan is given by the formula:

$$D = \frac{\sum \text{Outstanding Amount}_i}{\text{Total Borrowing}}$$

Outstanding amount i represents the various annual outstanding amounts of the loan over its lifetime. A variation of average duration of the loan introduces the discount factor and represents the “center of gravity” of the finance flows over time. A credit sequence [F1, F2, ..., Fn] at a discount rate of t has a duration of:

$$D = \frac{\sum_{i=1}^n \frac{F_i \times i}{(1+t)^i}}{\sum_{i=1}^n \frac{F_i}{(1+t)^i}}$$

This latter measure of duration is more often used as an instrument for measuring and managing the rate risk.

9.3. Long-Term Commercial Debt

To finance public service infrastructure, the first two methods that spring to mind are public budget finance and investment prefinancing by the project sponsors. Both of these methods are referred to as corporate financing. This implies the inclusion of the amount of the investment in the public accounts of the concessioning authority as well as in the company accounts of the constructor, respectively.

These finance solutions have the major disadvantage of being a burden on the investment capacity and balance sheets of the parties. This is particularly true in the case of transport infrastructure where the sums to be financed are large and the balance sheet ratios (see above)

are weak in the first few years of the project due to the slow increase in revenue generating traffic. An alternative to these methods is project finance.

It is difficult to define the characteristics of a typical project finance set-up because tailor-made solutions are so important. However, the financial set-ups have one essential point in common: repayment of the loan is either primarily or solely dependent on cash flows generated by the project itself. In the first case, this is called limited recourse financing and in the second, nonrecourse financing.

The two characteristics common to limited recourse financing are that the loan is repaid on the basis of cash flows generated by the project, and that the lender has no guarantees other than the assets of the project itself, which often are not financially recoverable for port projects.

9.3.1. Foreign Currency Loans

One way of reducing exchange risks is to obtain financing in local currencies. However, this type of financing quickly reaches its limits in developing countries. In fact, the weakness or nonexistence of a national money market, high local currency interest rates, and the absence of investors willing to provide finance over periods compatible with infrastructure projects all combine to exclude local currency debt or at least restrict its use to a short-term revolving line of credit designed to finance operating expenses. Foreign currency debt also poses problems of exposure to the residual exchange risks of convertibility and transferability.

9.3.2. Guaranteed Commercial Debt

Export credits and financial credits with a multilateral “umbrella” export credit agencies (ECAs) and multilateral agencies (MLAs) offer guarantees or “cover” that can mitigate political risks associated with port projects and therefore open up new financing possibilities. When the commercial banks are to a large extent freed from worrying about political risks, they can concentrate their efforts on the commercial risk

within the framework of terms offered by these agencies. The fact remains that these agencies are themselves subject to term and cost constraints that must be taken into account (particularly the OECD Consensus for export credit agencies).

9.3.3. Export Credits

Export credits can prove very useful when the project is located in a developing country and involves the contribution of foreign technology. Among export credits, one must distinguish between supplier credits (credit granted directly by the exporter) and buyer credits. Buyer credits, the more common of the two, are granted by commercial banks for a maximum length of two years to a foreign borrower to enable the borrower to pay cash to the supplier (the exporter) according to the terms of the commercial contract. Buyer credits free the exporter from the financial risk of making a credit-based sale to the buyer.

When an export sale is supported by a buyer credit, two distinct cross-referenced contracts are signed: the commercial contract between the exporter and the foreign buyer, and the credit agreement between this same buyer (as a borrower) and the lending banks. The commercial contract spells out the respective obligations of the supplier and the buyer. It must indicate the payment modalities (in particular the down payment to be made before delivery and the overall payment schedule) that will serve as a basis for the buyer credit. The credit agreement is signed between the commercial bank and the foreign buyer. Under this agreement, the bank commits itself to pay the exporter and the buyer agrees to pay back the bank for all amounts paid to the supplier according to terms and modalities spelled out in the credit agreement.

Buyer and supplier credits can both benefit from public support for medium- and long-term export financing. This support, governed by the consensus rules drafted by the OECD member countries, can be expressed in two ways:

- Provision by credit insurers of cover for political and commercial risks on foreign

debtors (the SPC would be the foreign debtor within the framework of a project finance transaction).

- Provision of a fixed rate for the loan, known as the reference commercial interest rate (RCIR), for instance in the case of COFACE, the French export credit agency. In Europe, such a rate stabilization mechanism is possible for loans in both euros and foreign currencies.

Buyer credits are of three varieties:

- Administered credit is when the buyer credit benefits from public support through a rate stabilization mechanism on top of a guarantee provided by an export credit agency. Also, this type of loan is placed at a more competitive level (fixed rates and long terms) than syndicated financial loans or bonded debt.
- Pure cover credit is when the buyer credit only benefits from a guarantee provided by an export credit agency. In this case rates are neither stabilized nor enhanced. They are freely established by the banks, indexed on a reference index (EURIBOR or LIBOR, for instance), and can be variable, revisable, or fixed.
- Financial credit or free credit is when the buyer credit is established without any public support and without any export credit guarantee. The manufacturing risk is carried by the supplier and the credit risk by the bank. Because of the risk involved, it is in fact limited to the best-known borrowers, and generally limited to down payment financing.

Export credit agencies exist in most industrialized countries: COFACE in France, SACE in Italy, HERMES in Germany, ECGD in England, CESCE in Spain, and Ex-Im Bank in the United States and Japan.

In a port project, this source of financing relates more to port equipment (for example, handling equipment, container gantries, and computer systems) than infrastructure (for example, civil

engineering or dredging), which is usually sub-contracted locally. To enjoy the export credit cover, the project must fulfill certain criteria. The first of these is that payments made under the contract concluded with the exporting equipment manufacturer must represent 85 percent of the share able to be repatriated (national share + foreign share). Box 10 describes how the concepts come together in an example.

It should be pointed out that while the principal activity of export credit agencies is now to cover political risks, some of them have project financing teams and are beginning to consider covering the commercial risk in some projects. Furthermore, there is an increasing number of major project financing contracts in the form of multisourcing operations, in the sense that they are structured either by major multinational groups that can source from different countries through their subsidiaries, or by multinational consortiums organized on a cocontracting or subcontracting basis. This change can be explained by the fact that the ever increasing size of the investment level of the projects does not always coincide with the total commitment limitations (geographic or sector) set by the export credit agencies and governments within the framework of their risk policy (see Box 11).

9.3.4. Financial Credits with a Multilateral Umbrella (A- and B-loans)

Multilateral organizations, such as the World Bank Group, through the International Bank of Reconstruction and Development (IBRD) or regional development banks (European Bank for Reconstruction and Development [EBRD], Asian Development Bank (ADB), and Inter-American Development Bank [IDB]), are also involved in these types of transactions alongside commercial banks and export credit organizations. This is referred to as cofinancing.

Most of the time cofinancing is carried out in the form of parallel financing where the project is split into separate lots, each covered by a World Bank loan or a commercial debt granted by a bank or a buyer credit covered by an

Box 10: An Example of Export Cover by COFACE in a Port Project

Assume there is a greenfield port construction project in China requiring the supply of quayside gantries. Let us further assume that the equipment manufacturer, whom we shall call the “exporter,” identified for this service is French, and that the commercial contract concluded between the SPC and the industrialist represents an investment of 100 M FRF broken down as follows:

- French share, 50 M FRF (parts exported directly from France).
- Foreign share, 10 M FRF (parts manufactured in Germany, for example, and exported to China).
- Local share, 40 M FRF (for the installation of port equipment in China subcontracted locally by the exporter).

The proposed financing for this contract is a buyer credit (structured by the exporter’s French bank) with a request to COFACE for export cover against the political risk during the manufacturing stages (six months, for instance) and credit (five years for this kind of investment according to OECD rules) with an application for stabilization of the loan’s interest rate. The notion of export cover is a complicated one as will be illustrated by the following example.

During the manufacturing stage, the extent of the export cover granted to the exporter is 100 million FRF, for an amount of cover which can vary (depending on the policies issued by the export credit agencies from 70–85 percent

of the value of the commercial contract, that is, 70–85 million FRF in this example). The 15–0 percent of the value not covered cannot be covered by additional insurance by the exporter.

During the credit stage, the extent of the export cover granted to the exporter’s bank amounts to 100 percent of the portion of the contract that can be repatriated (that is, the French share plus the foreign share, or 60 million FRF). The amount of cover granted to the bank is 95 percent of the extent of cover (the remaining 5 percent cannot be covered by additional insurance by the bank).

In other words, the export cover granted by COFACE in terms of cover for the political risk and rate stabilization only relates to an amount of 60 million FRF. The additional financing required for the port investment (40 million FRF in this example) is then known as “straight back-up credit.” It can be provided either by the exporter’s bank or by another commercial bank (a local Chinese bank, for example).

Generally speaking, finance structuring with export credit leads to the credit being split into two tranches: one guaranteed and the other not guaranteed at market conditions (rate and duration). This can also be referred to as a joint financing technique because each of these tranches refers to one and the same investment.

Source: Author.

export credit agency. These cofinancing methods, relating to financing of separate lots, should not be confused with the technique of joint financing, which combines several sources of finance in a single lot, according to a percentage agreed to in advance.

In practice, the involvement of a multilateral agency in this type of set-up leads to the financial credit being structured at two levels (or in two segments): an A-loan granted by the multilateral organization itself, and a B-loan underwritten by commercial banks under the multilateral umbrella.

The World Bank, through the IFC, can be involved in A-loans in three ways:

- Direct financing of the last installments of the loan granted by the commercial banks, usually translating into a 10–25 percent participation.
- Provision of a guarantee relating to the last installments, in return for a guarantee fee.
- Conditional participation of the World Bank in variable rate credits, if the final charge corresponding to payment of interest exceeds the repayment ability as originally assessed.

As far as B-loans are concerned, the notion of a multilateral umbrella does not mean that the multilateral organization gives the commercial

Box 11: Principal Guarantees Offered by an Export Credit Agency for Project Financing: The COFACE Example

COFACE insurance policies cover four categories of risks:

- *Manufacturing risk*: Materializes when the fulfillment of the exporter's contractual obligations is suspended for at least a 6-month period, inasmuch as this situation results exclusively from factors spelled out in the insurance policy subscribed by the exporter.
- *Credit risk*: Materializes when the exporter's commercial bank finds it impossible to recover all or part of the debt relating to the guaranteed contract, inasmuch as this situation results exclusively from factors spelled out in the insurance policy subscribed by the exporter.
- *Performance bond and advance payment reimbursement guarantee risk*: Upon request from the exporter, these guarantees and bond commitments may be included in the scope of the manufacturing or credit risk guarantees.
- *Bid guarantee risk*: Materializes when the exporter cannot recover from the beneficiary of the bid guarantee all or part of the guarantee amount.

In principle, COFACE also demands that to cover the manufacturing risk, the credit risk must be covered, and that to cover the credit risk, in the case of progressive payments, that the manufacturing risk must be covered.

Facts Triggering Guarantees

COFACE general conditions list eight factors triggering a call on guarantees (manufacturing or credit):

- Arbitrary cancellation of the guaranteed contract by the debtor.
- Mere carence of the debtor.
- Insolvency of the debtor, consisting of its incapacity to meet its financial commitments, resulting from:
 - ~ A judicial act resulting in the suspension of individual lawsuits (as the judicial liquidation).
 - ~ An agreement reached with all creditors.
 - ~ A de facto situation leading the insurer to conclude that any payment, even partial, is unlikely.
- General moratorium enacted by the government of the debtor's country or of a third-

party country through which the payment must be processed.

- Any other act or decision of a government of a foreign country preventing the guaranteed contract from being carried out.
- Occurrence, outside of France, of war, revolution or riot, or acts of nature such as hurricane, flood, earthquake, volcanic eruption, tidal wave, or similar event.
- Political events and economic hardships occurring outside France, or legislative or administrative measures taken outside France, preventing or delaying the transfer of funds paid by the debtor or its guarantor.
- Act or decision by the French government, such as a ban on exports of the goods or services that are the object of the guaranteed contract, or requisition of the goods in the course of manufacturing.

Principal Guarantees Offered by an Export Credit Agency for Project Financing: Concepts

The risk definitions above, as well as the guarantee triggers, constitute the basis of the guarantees offered by COFACE to its clients. However, to get a good understanding of the scope of the guarantees offered, it is necessary to grasp the following concepts:

- *Public buyer*: An entity exercising the government's responsibility and which cannot be judicially bankrupt. When a public buyer benefits from a letter of guarantee from its finance ministry, it is then called a sovereign buyer.
- *Private buyer*: A buyer that does not meet the previous criteria, and which can therefore be judicially bankrupt.
- *Political risk*: Risk resulting from a political fact, such as a war, revolution, or an act of government preventing the contract from being carried out. It becomes an extended political risk when the event leading to the materialization of the risk is not of sovereign origin, but comes from a local community, a public establishment, or similar organization.
- *Commercial risk*: Risk resulting from the financial instability of the private buyer (insolvency). This implies that any payment default by a public buyer, sovereign or not, exclusively results in materialization of a political risk, or broad political risk.

Box 11: Principal Guarantees Offered by an Export Credit Agency for Project Financing: The COFACE Example (*Continued*)

Specificity of Risk Coverage by COFACE in Project Financing

In project financing schemes, the borrower is the SPC. Therefore, in all cases, even when the public partner would have chosen to take equity participation alongside the private sponsors, the borrower is considered a private buyer. However, COFACE will not cover, in principle, the SPC's commercial risks, that is, insolvency resulting from an inadequate assessment of future traffic in particular.

Political risks are covered, both manufacturing and credit. As far as the extended political risk is concerned, the risks potentially eligible must be measurable, and refer to specific clauses in the contract, the nonrespect of these clauses allowing the SPC to terminate the contract with a right to indemnity by the public partner. This indemnity is defined to allow it to cover, as a minimum, the outstanding debt balance.

Political risks refer to the public partner's commitments to do or to pay, with specific contents spelled out in the contract. In case of noncompliance, this constitutes a breach of contract. These may include availability of land, issuance of building or operating permits, payment of investment or operating subsidies, fiscal measures initially granted, and so forth.

Source: Author.

banks any kind of guarantee on this credit. It simply means that the banks will feel reassured by the participation of the multilateral organization because the host states are unlikely to take detrimental measures against the project because of their presence.

Finally, although multilateral institutions are often unwilling to bear certain risks, they have the advantage of being able to offer much longer loan periods at fixed rates than the commercial banks.

9.3.5. Bonded Debt

Bonded debt is a source of long-term financing that is currently enjoying widespread popularity, particularly in financing transport infrastructure. It is used extensively in the North American market and is reserved for institutional clients.

This option should not be confused with bond issues for public savings.

Issuing bonded debt (under what is referred to as Rule 144A) enables financial terms (margins and fees) to be obtained as well as maturities that are more favorable than those available in the banking market. This method of financing is fairly recent, as it only took off in the early 1990s and it has still not reached maturity. In fact, it is only in the last few years that the market has come to agree to cover financing requirements during the construction period. It is therefore more a method of refinancing for banks than of financing for investors.

It should also be noted that using this type of financing source can create problems for inter-creditor relations. While the problem of seniority between the debt categories can be easily solved, the ability of the various quorums to call in their sureties and the differences in the level of information supplied to the protagonists poses major problems (for example, a club of a few banks does not receive the same information as a large, liquid syndicate of heterogeneous investors).

9.3.6. Structuring Equity and Quasi-Equity

Equity is a financial resource that is flexible enough to earn its return over a variable and unspecific time frame, without creating any risk of financial sanction by the equity holders. In other words, equity refers to financial resources placed under the control of the company and designed to cover the materialization of project risks.

9.3.6.1. Equity Provided by the Public Sector.

There are many ways in which the public sector can become involved in port investments.

Which of these is applied depends to a large extent on the configuration of the project. In a nonexhaustive way, one can list the following options:

- *Contribution of assets:* This solution has the dual advantage of reducing the initial amount of the investment and possibly providing income during the construction period. Within the framework of a port

extension project, a contribution of assets could consist of entrusting the private concession holder with the operation of an existing terminal managed until then by a public port authority. In this way, the financial profitability expected by investors is reinforced by the assurance of cash flows on signature of the concession agreement; this is known as backing.

- *Cash contribution:* The concessioning public authority can invest cash in the project or provide operating subsidies. This increases the available cash flows for servicing the debt. For example, in the case of a green-field port project, investment subsidies are frequently required for financing swell protection structures because of the discontinuous (lumpy) nature of this investment.
- *Guarantee contributions:* The concessioning public authority offers a minimum revenue guarantee, a guaranteed return on invested capital, or a guarantee to make good on liabilities in the case of force majeure.

There are many financing vehicles for the public sector to contribute equity to the SPC. The intervention can take the form of:

- Public financing drawn from the budget of the concessioning authority or the host state of the project.
- Export credit (usually buyer credit) granted to the concessioning authority by one or more export credit agencies (creating subsovereign risk for the bank).
- Bilateral financing (for example, the French Development Agency) or government protocol (now renamed Emerging Country Reserve in France).
- EU financing, which can come from the European Investment Bank (EIB) or the European Commission (European Development Fund financing in particular).
- Multilateral financing from the World Bank Group (IBRD or IDA) or regional development banks.

With the exception of export credits, the beneficiary of this type of financing is the host state of the project, which then retrocedes the credit, frequently granted on concessionary terms, to the port authority concerned. While this technique has an undeniable advantage for the lenders of avoiding the risk of a shortfall caused by the local public authority, given that the credit enjoys a “sovereign guarantee,” the fact remains that in some developing countries (in Africa in particular) this procedure of the state retroceding the credit is carried out on terms and conditions that are not always favorable to the local company, as the state wants to make a profit on the transaction.

Financial analysts compare all of these public sector financial investments in the project to equity, whether or not the concessioning authority is one of the shareholders of the SPC. The risk that these resources will not be made available to the private concession holder remains. This risk is an integral part of the political risk. One can therefore understand why the private concession holder (and the banks in particular) have tended to prefer investment subsidies, payable right at the start of the concession, to operating subsidies.

9.3.6.2. Equity Invested by the Project's Sponsors. Equity contributed to the project by its sponsors is paid into the SPC's share capital. This is determined according to the minimum required by legislation and the available funds of the future shareholders. Banking requirements are usually not too strict in terms of the amount of share capital required, as only the value of the equity and of similar funds is significant in terms of financing structure. The equity balance is usually given to the SPC by the sponsors in the form of confirmed letters of credit in the name of the shareholder.

9.3.6.3. Equity Invested by Multilateral Institutions. Some multilateral institutions have financial tools that enable them to invest in these operations as a shareholder of the SPC in the same way as the project's sponsors. The best known of these institutions is the International

Finance Corporation (IFC), a subsidiary of the World Bank Group, which invests in private companies in developing countries. It acts as a catalyst, in the absence of a government guarantee, by providing coinvestors with protection against noncommercial, expropriation, and profit repatriation risks.

There are three ways in which the IFC can be involved:

- Direct investment in the capital of the SPC.
- Long-term subordinated loans granted to the SPC and then considered as quasi-equity in the financing structure.
- Shareholder advances granted to the project sponsors, which are similar to partners' current accounts and are also considered as quasi-equity.

9.3.6.4. Equity Invested by Bilateral Institutions. Some bilateral institutions become involved in these projects by investing in the SPC. In France, this is the case with PROPARCO, an investment subsidiary of the French Development Agency (ADF). Established in 1977, PROPARCO (Société de Promotion et de Participation pour la Coopération Economique) has a mission to promote the creation and development of private enterprises in developing countries, particularly in Africa. PROPARCO's equity participations are to be sold after an average of six years, when the enterprise reaches a satisfactory growth rate.

9.3.6.5. Specialist Investment Funds. In some cases, the use of specialist funds (geographic, sector, or religious) can also finance major projects. These sophisticated sources of finance are usually similar to quasi-equity because the invested capital is mostly supplied to the SPC in the form of mezzanine debt.

This subordinated debt, which is junior in ranking to traditional bank debt, is frequently given to the project for a long term and attracts a much higher rate of interest than traditional bank debt. This type of financing is therefore

reserved for highly specialized private investors, for example, pension funds, institutional investors, or finance company subsidiaries of major groups.

9.4. Managing Exogenous Financial Risk

Exogenous financial risks are a category of market risks as opposed to political risks. They arise from the perpetual changes in the capital market. Such risks usually relate to interest rates, exchange rates, and counterpart risks. With regard to interest rate and exchange risk cover, there are two main families of markets that although different, are also interdependent:

- The interbank market (forward), where contracts are negotiated by private agreement and the bank usually acts as an intermediary between several counterparts for a commission. This is also known as the over-the-counter market.
- The organized markets (futures), whose main feature is the offer of standard contracts, futures contracts, and option contracts continuously quoted on the international stock exchanges. Standardization relates to the nominal value (also known as the notional value) and the maturity dates of those contracts.

While the cover principles are identical in both of these markets, the methods employed in their operation are quite different. Three reasons explain why:

- Standardization of contracts (nominal value and fixed maturity dates) implies that the cover obtained in the organized markets is always imperfect for the investor, contrary to what happens in the interbank market. Imperfect means that the level of cover is only rarely an exact multiple of the nominal value of the futures contract. Similarly, it is almost equally as rare for the cover expiry date to correspond to the maturity date of the futures contract. Also, futures contracts provide only partial cover, and there

continues to be a residual risk for the company.

- In the organized markets, the vast majority of contracts do not involve actual delivery of the underlying securities. These delivery and receipt undertakings are in fact offset before maturity by a transaction in the opposite direction to the original one. Conversely, in the interbank market, the obligation to deliver or receive the underlying security usually exists. In jargon, the futures markets are said to be “paper contracts” as opposed to the “physical contracts” pertaining to the underlying security.
- Because the interbank market is an over-the-counter market, transactions are executed principal to principal, which implies a counterpart risk that is not present in organized markets due to the presence of a clearinghouse.

The financial engineering of a project in terms of risk cover always has to be tailor made. As such, it must adapt itself to the configuration of the project and its environment, the cover requirements sought by the investors, and the local conditions of the country. Also, the products available on the capital market are not applicable to all developing countries.

Several previously described methods of financing already incorporate cover against certain financial risks in their design. This is particularly the case with guaranteed credits, which, depending on circumstances, can offer the SPC exchange or interest rate guarantees. Also, while it is easy to dissociate the method of financing a project from the cover for financial risks in theory, in practice it is more difficult. Designing the financial engineering of a project must therefore fall within a global approach where the financing and the financial risk management methods are dealt with simultaneously.

All of the cover products (detailed in the following paragraphs) are used more during the operating period than the construction period for two main reasons. First, cover requirements

are without common measure in terms of duration, a few years for construction and typically a minimum of 20 years for operation. Second, using such products requires an accurate prior knowledge of the amount of flows to be covered, an exercise that is much more difficult to achieve during the construction stage.

The principles of cover are based on the notion of transfer (and not removal) of the financial risk to a counterpart. The counterpart agrees to bear the risk for payment of a premium because its cover need is the opposite of that required by the investor. In other words, all these mechanisms involve the notion of counterpart risk, which can be difficult to manage in the case of a project financing set-up.

The market sees new risk management and cover instruments every day. Their sophistication is limited only by the imagination of the financiers. It would therefore be futile to attempt to deal with this field exhaustively. The goal of the following section is to make the mechanisms understandable and explain the issues, specifically within the framework of a project financing set-up.

9.4.1. Interest Rate Risk Management

As already mentioned, debt financing usually involves a variable interest rate, consisting of a reference rate (variable) and a margin (fixed). As far as the SPC is concerned, the interest rate risk occurs when the reference rate rises and, along with it, the financial costs of the project. Given that concession contracts are concluded for long periods, the concession holder's main concern is to try to cover itself against the risk of rates rising in the long term.

Several issues regarding interest rate risk management merit further explanation. The risk associated with rising reference rates (for example, EURIBOR or LIBOR) can result from two independent sources, the first being an increase in inflation in the countries in which the reference index is calculated, that is, the developed countries. This creates a need to neutralize the negative impact of inflation on the cost of the

debt, since it will make the debt more expensive. Neutralizing the effect of inflation is possible only if the price indexing parameters laid down in the concession contract make provision for this. Delaying the adverse affect of inflation is the existence of a lag factor, of varying length, between the time the real interest rates rise and the time they are passed on in the concession holder's interest charges. This increase might lead to an increase in the project's revenue if the project is carried out in one of the indexing countries, thereby partially offsetting the affects of increased inflation and interest rates.

The second source is an increase in real interest rates wherein the annual increase is not offset by a parallel increase in available cash flow for servicing the debt. This implies a corresponding rise in the cost of the debt. Consequently, the SPC bears the whole brunt of the rate rise if no other cover mechanism was originally provided in the set-up.

Conversely, interest rates could fall significantly during the operating period. If the SPC had managed, either directly through the loans granted to it or indirectly through the cover instruments it contracted, to maintain a fixed interest rate on its debt, it would experience higher interest expenses than competitors with variable rate debt. This would imply that the port's customers would have to bear this surcharge through the prices they were charged. In other words, setting up a fixed rate loan during a period of falling rates would translate into a less favorable competitive position for the SPC (compared to other competing ports or terminals that may have opted for a variable rate loan), leading to a rise in the commercial risk. A prudent mix of fixed and variable rate loans is therefore advisable, on the understanding that there is no ideal formula. Although a 50-50 ratio is often used as an initial approximation, the final determination of this cover threshold is an extremely complex exercise as it assumes the ability to forecast long-term rate trends over a 10-, 15-, or 20-year financing cycle.

Finally, let us remember that existing cover instruments are used more during the operating

than the construction period. It is harder to determine the rate risk and fix drawings on the loan in time (dependent on the state of progress of the works) than to fix the repayments that are stated in the loan agreement.

9.4.1.1. Interest Rate Swaps. The use of swaps to protect against the risk of interest rate changes, particularly long-term rates, has become popular over the last few years. Banks have played a lead role in the development of this market. A swap is an exchange of interest rates between two dealers, the bank usually acting as an intermediary and charging a commission. A rate swap can also be obtained where two counterparts are involved in different currencies. In practice, the SPC with a variable rate debt pays the corresponding interest and receives in return interest calculated on the basis of a fixed rate. This effectively provides the SPC with a fixed rate debt.

In project financing, it can be difficult to find a counterpart who will agree to swap interest rates with the SPC, primarily for two reasons: first, the SPC can only offer the cash flows produced by the project as a guarantee. Also, the credit risk attached to the SPC, which the counterpart will have to accept, depends on the project configuration. In countries subject to significant political risks, a possible but difficult to implement method consists of transferring this credit risk to the project's sponsors by asking them to guarantee the swap if the SPC were to fail. The second reason it is difficult to find a counterpart to swap with is that a variable rate loan granted by a banking syndicate usually has a repayment profile based on the profile of the cash flows produced by the project. It is extremely rare for this to correspond perfectly to the counterpart's cover requirements. It is also common for the swap to relate only to a fixed portion of the loan repayment (possibly smoothed out over the financing period), the balance remaining exposed to the rate risk. This is known as a residual interest rate risk. This technique enables the SPC to enjoy a possible rate reduction on the uncovered portion of the loan, while at the same time enjoying cover on the portion with the fixed rate in the event of a rise.

9.4.1.2. Firm Financial Instruments in the Over-the-Counter Market. Two firm financial instruments exist on the over-the-counter market, a forward-forward rate, which enables a company or an investor who wishes to borrow on a future date and over a set period to fix the cost of borrowing now, and a forward rate agreement (FRA), which enables a company or an investor who wishes to borrow on a future date and over a set period to cover the rate position with a bank or financial institution.

While these two products offer excellent protection against rate risks, they differ on one essential point. The FRA completely dissociates the rate guarantee transaction from the financing transaction, which is not so in the case of the forward-forward rate. For this reason, FRAs are more frequently used in project finance, given the diversity and specific nature of the loans granted in these set-ups.

9.4.1.3. Firm Financial Instruments in the Organized Markets. In the organized markets, futures are also able to offer efficient protection against interest rate risks. The standard contracts traded in these markets are undertakings to deliver (for the contract vendor) or to receive (for the contract purchaser), on a clearly defined date, fixed-income financial securities with features strictly specified by the contract itself, at a price fixed on the day the contract was negotiated.

The general principle with these cover transactions is to take a position in the contract market opposite to that held in the cash market of the underlying security, the loan transaction in this case. In practice, an SPC wishing to cover itself against an interest rate rise (particularly long-term interest rates) will sell forward standard contracts. The number of contracts sold is calculated in such a way that the duration factor, defined in advance, is equal in both transactions.

9.4.1.4. Conditional Financial Instruments (interest rate options). An option confers a right on its holder to buy or sell the underlying security of the option (for example, financial securities) at a rate fixed in advance (called the exercise price or striking price). This right can only be exer-

cised during the life of the option, that is, up to the exercise date. If the option grants its holder an option to buy, it is called a call option; if the option grants its holder an option to sell, it is called a put option. In return for the right resulting from the purchase of the option (regardless of whether it is a call or put), the purchaser pays the vendor of the option a premium, which the vendor keeps whether the option is exercised or not.

There are two main types of interest rate options available to an SPC fearing a rise in rates, one is a cap that enables borrowers to set an interest rate ceiling beyond which they no longer wish to borrow and will receive the difference between the market rate and the ceiling rate. This product is perfectly suited to the cover requirements sought by an SPC, while at the same time enabling it to benefit from a gain in the event of rates changing favorably, which in this case would translate into a rise in rates. The other interest rate option is a collar that is a combination of a cap and a floor (which enables a borrower to set a floor rate). This product enables a dealer to set an interest rate fluctuation range outside of which it has to pay the difference between the market rate and the floor rate and within which the counterpart will have to pay the dealer the difference.

Although these products exist on organized markets, they are more commonly traded on the over-the-counter market, which offers the purchaser of the option, the SPC, a product tailor made to meet its requirements.

The principal limiting factor in the use of these cover instruments is the sometimes extremely high premium associated with them, that is, the cost of the option. As the volatility of the underlying security depends on the exercise date of the option, a cover application from an investor relating to a very long period of time will automatically result in a rise in the return required.

9.4.2. Foreign Exchange Risk Management

For a company investing in a foreign country, the risk of a change in foreign exchange rates

traditionally materializes in two different ways: a consolidation exchange risk or asset risk that arises when the financial results of a subsidiary company (the SPC in this case) are included in the consolidated accounts of the sponsors in different currencies, or a transaction exchange risk that arises when investments or operating income and expenditure involve several currencies.

The consolidation exchange risk, although sometimes overlooked by financial analysts in privatization projects, is a major concern for the project's sponsors. The ways of managing it relate to the accounting and taxation details of the consolidation, which will not be dealt with here because there are large local disparities in these details between one country and another. We note simply that the consolidation risk is usually approached from the point of view of tax optimization of the project and is dealt with once the methods of financing and risk cover have been set.

As far as the transaction exchange risk is concerned, several risk management methods were mentioned in the section devoted to risk management. These techniques are intended to eliminate the risk by pricing the port services in foreign currencies (the project is then said to be foreign currency generating) or obtaining a loan in local currency or transfer the exchange risk to public entities by obtaining an exchange rate guarantee over the period of the concession from the host country's central bank (at the request of the ministry of finance), which converts the exchange risk into a political risk.

These techniques, although highly desirable for the concession holder, are a challenge to implement. Depending on circumstances, the SPC will have to bear a part of the exchange risk. Against the backdrop of an international economy characterized by floating currencies and wide fluctuations in currency rates, managing the foreign exchange risk is a necessity for an SPC. Consequently, it will strive to transfer this risk to a counterpart expert in dealing in the foreign exchange markets.

The foreign exchange market is the most challenging segment of the capital market. Spot and

forward transactions between banks occupy a central position in the market. It would be wrong, however, to think that the foreign exchange market is reserved for these interbank transactions. Since the beginning of the 1970s, new markets, the derivatives markets, have gradually developed.

Within the derivatives markets, it is customary to make a distinction between standard contract markets, which are located in stock exchanges that have clearinghouses, and nonstandard contract markets, which are a compartment of the interbank market in which over-the-counter deals are transacted. Within these standard contracts, there is a further distinction between futures and options.

All of the methods relating to interest rate risk cover also exist for exchange risk cover. Thus, the cover products available on the derivatives markets are:

- Forward currency sales on the interbank market.
- Currency futures on the organized markets.
- Foreign exchange options in both compartments of the foreign exchange market.

As a rule, investors involved in project finance set-ups tend to prefer the over-the-counter market, which is more flexible in terms of the choice of amount to be covered (which may exactly match the expected amount of flow), maturity dates, and exercise prices in the case of foreign exchange options.

With regard to the options market, there exists an "option option," which has proved to be a particularly interesting product for the investor at the stage of bidding on a tender. The project profitability calculations carried out by the company are based on certain assumptions about exchange rates even though the company is not certain of winning the contract. If it wins the contract after the invitation to tender, it is not uncommon for the market to have shifted significantly in the meantime. Also, an option option gives the option holder the right to buy a foreign

exchange option whose exercise price is close to the reference exchange rate used, thereby covering itself as early as the tender stage. If the company is not successful, it doesn't exercise its option option. Also, it is worth mentioning that since the volatility of the price of an option is less than the volatility of its underlying security (in this case the foreign currency), the price of the option option tends to be low.

Finally, the use of these cover products, as in the case of rate risks, requires an accurate, prior knowledge of future foreign currency cash flows. This is referred to as the company's "net foreign exchange position." Determining this position is a difficult exercise, particularly during the operating period. Assessing the value of the basket of currencies to be covered can therefore only be a "guesstimate." Nevertheless, it is important to estimate these flows carefully during the financial modeling of the project. This point will be discussed further at a later stage.

9.4.3. Counterpart Risk Management and Performance Bonds

All of the techniques mentioned in the Part A of this module relating to risk management are based on the principle of risk sharing in project financing set-ups: to minimize the costs of covering risks, they must be borne by the party in the best position to assume it. This involves transferring each identified risk to a private counterpart. The risk that any of these counterparts may disappear is what is called the counterpart risk or credit risk.

The counterpart may be directly involved in the project and therefore belong either to the SPC or the bank syndicate. But, it may also take no direct part in the project other than through the risk it agrees to take on, either because it counter balances an opposite cover requirement or because it expects payment for doing so.

Also, with regard to counterpart risk management, a distinction must be made between the credit risk relating to the sponsors of the project and the credit risk resulting from the other counterpart, as the financial cover instruments used are of a totally different kind.

The need to cover the counterpart risk in a project financing set-up stems principally from a requirement of the bank syndicate that structured the loan and wishes to satisfy itself as to the solvency of the various sponsors of the project (for example, builder, operator, supplier, owner, or shipper). To satisfy itself that these parties will honor their financial contractual commitments, which might be expressed in terms of contract penalties, the bank syndicate may require the establishment of guarantees known as performance bonds. These are usually issued by one of the party's "friendly" banks, which must also have an acceptable rating. The bank syndicate is then confident of being indemnified if any of the project's sponsors become insolvent. This is also a good way for the arranging banks to limit their liability, by only accepting projects with top ranking partners as sponsors.

Counterpart risk cover instruments also include credit derivatives that are beginning to appear in the project financing market. For the moment, however, they are still handicapped by a certain lack of liquidity and a small choice of available counterparts.

As far as the other financial counterparts of the project are concerned (banks, insurers, and specialist financial institutions), the use of credit risk cover products is still not common today. In fact, project financing set-ups remain a reserve of a small number of players of international stature who usually have an excellent rating.

9.5. Financial Engineering and Political Risk Management

Political risk is an expression that covers all risks resulting from unfavorable and unilateral decisions taken by the public authorities of the host country of the project, whether they are the state, local authorities, or port authorities. Financial engineering of political risk management consists of setting up adequate insurance products to mitigate any financial consequences that may result from a public decision that is detrimental to the viability of the project.

The separate presentation of political risk and market risk (the exogenous financial risks presented in the previous sections) within the framework of this module needs to be distinguished. The risks of nontransferability and nonconvertibility of the local currency, which are components of foreign exchange risk, can be used as an example. While it is clear that fluctuations in foreign exchange rates are partly due to market dealings, the fact remains that they are also dependent on the monetary policy either set by the national central bank or the government. It is impossible to determine with precision the exact split between these two classes of risk and, hence, to design the optimal cover arrangement. This example illustrates a “grey” area that makes the financial analyst’s challenge a little more complex.

The financial treatment of political risk management harks back to the notion of investment guarantee, which poses the difficult question of knowing under which balance sheet headings to place this cover. While the answer may seem obvious with regard to the guarantees offered by secured loans (which were dealt with in the section covering the financial structuring of the project), existing insurance products relating to investment guarantees can, depending on the type of policy, relate either to a guarantee of equity invested by the sponsors or a guarantee relating to all the project’s assets. This distinction, which is fundamental in terms of its potential consequences, is difficult to grasp in practice.

The calling in of these guarantees and indemnity procedures provided by insurance policies in the event of default is not without problems. Without going into detail, it should be mentioned that the notions of “events of default” and “subordination of rights” between an investment guarantee and a secured loan in practice prove to be particularly complex and difficult to manage for all private partners.

9.5.1. Guarantees Offered by Multilateral Agencies

The best known of the multilateral agencies offering investment guarantees is the

Multilateral Investment Guarantee Agency or MIGA; its goal is to “encourage investments for productive purposes between member countries of the World Bank Group.” In this sense, it is in a position to guarantee the SPC’s investments against losses that may result from noncommercial risks, including:

- The risk of nontransferability as a result of restrictions imposed by the host government.
- The risk of loss as a result of legislative or administrative measures or omissions of the host government that effectively deprive the foreign investor of ownership rights or the ability to exercise investment control.
- The risk of breach of contract by the host government in relation to the investor.
- The risk of armed conflict and civil disturbance.

Since 1994, the World Bank (Bank or IBRD) has promoted the use of political risk mitigation guarantees to address the growing demand from sponsors and commercial lenders contemplating financial investment in the infrastructure sectors of developing countries. The Bank’s objective in mainstreaming guarantees is to mobilize private capital for such projects on a “lender of last resort” basis while minimizing the host government’s requisite indemnity to the Bank as a condition of providing the guarantee.

Bank guarantees are provided to private lenders for infrastructure financing where the demand for debt funding is large, political and sovereign risks are significant, and long-term financing critical to a project’s viability.

The Bank offers commercial lenders a variety of guarantee products: partial risk, partial credit, enclave and policy-based guarantees in IBRD countries, and partial risk guarantees in IDA-only countries. Broadly speaking, all guarantees provide coverage against debt service default arising from sovereign risk events. Each guarantee is tailored to match the specific need of an individual transaction.

IBRD guarantees are offered for projects in IBRD-eligible countries, with the exception of certain foreign exchange earning projects in IDA-only countries. IBRD guarantees can be both partial risk and partial credit in nature. Bank guarantees are generally available for projects in any eligible country, irrespective of whether the project is in the private or public sector. The Bank may, however, at times limit the availability of guarantees in certain countries, for example in countries undergoing debt restructuring.

IBRD partial risk guarantees ensure payment in the case of debt service default resulting from the nonperformance of contractual obligations undertaken by the government or their agencies in private sector projects. Sovereign contractual obligations vary depending on project, sector, and circumstances. The obligations typically include:

- Maintaining an agreed regulatory framework, including tariff formulas.
- Delivering inputs, such as fuel to a private power company.
- Paying for outputs, such as power or water purchased by a government utility.
- Compensating for project delays caused by political actions or events.

Partial risk guarantees may also cover transfer risks that may be caused by constraints in the availability of foreign exchange, procedural delays, and adverse changes in exchange control laws and regulations.

Partial risk guarantees are used in IDA member countries in sectors undergoing significant reforms. IDA guarantees are offered on a pilot basis to private lenders against country risks that are beyond the control of investors and where official agencies and private markets currently offer insufficient insurance coverage. IDA guarantees are available selectively, where an IBRD enclave guarantee is not available. IDA guarantees can cover up to 100 percent of principal and interest of a private debt trench for

defaults arising from specified sovereign risks, including government breach of contract, foreign currency convertibility, expropriation, and political violence.

Partial credit guarantees cover all events of non-payment for a designated portion of the financing. While these guarantees historically have been used to encourage extension of maturity by covering the later years of the financing, the Bank recently structured a partial credit guarantee to cover a single coupon interest payment on a rolling basis throughout the life of the facility, plus the final principal repayment.

Enclave guarantees are highly selective partial credit guarantees structured for export-oriented foreign exchange-generating commercial projects operating in IDA-only countries. Enclave guarantees may cover direct sovereign risks such as expropriation, change in law, war, and civil strife, but may not cover third-party obligations (such as those of an output purchaser or input supplier), nor will it guarantee transfer risk. In all cases, the scope of risk coverage under the guarantee would be the minimum required to mobilize financing for a given project.

Bank guarantees facilitate the mitigation of risks that lenders cannot assume, catalyze new sources of finance, reduce borrowing costs, and extend maturity beyond what can be achieved without the bank guarantee. They also provide more flexibility in structuring project financing. Clearly, within the World Bank Group, IFC, and MIGA are the preferred sources of support to the private sector. As such, sponsors and financiers should consult with IFC and MIGA concerning their potential interest in financing or covering the project. IFC supports private sector projects through equity and debt financing, the syndicated B-loan program, security placement, and underwriting and advisory services. MIGA provides political risk insurance primarily for equity investments, but it can also cover debt financing as long as it is also covering equity finance for the same project. These agencies cannot accept host government guarantees.

9.5.2. Guarantees Offered by Export Credit Agencies

Export credit agencies also issue guarantee policies covering investment operations abroad. These instruments usually provide a guarantee for the SPC against the political risks of an attack on shareholders' rights and nonpayment and nontransfer of the payment, or nontransfer of the investment or of the indemnity provided in the concession contract, in the event of nationalization.

The guarantee package (with a cover ratio in the region of 90–95 percent) relates not only to the initial investment, but also to the self-financing produced by the project, that is, the profits to be reinvested and the profits to be repatriated. Generally, there is a ceiling on the basis of cover relating to the self-financing produced by the project: in the case of COFACE in France, the cumulative limits are respectively 100 percent (with respect to profits to be reinvested) and 25 percent (with respect to profits to be repatriated) of the initial investment.

Finally, it should be noted that securing such a guarantee is conditional on the existence of a bilateral investment agreement between the country of the export credit agency and the host country of the project.

9.6. The Use of Private Insurers for Covering Political Risks

Private insurers sometimes offer viable alternatives to public insurers for covering political risks. The cost of this insurance may be quite high, but it is sometimes the only alternative for making financing of projects in difficult countries possible.

A private insurer covers the banks against the occurrence of a political risk causing the loan to default. Private insurers are sensitive to the monitoring procedures that the banks put in place to assess the political risk and its development. The banks must therefore provide evidence of their ability to assess and avoid political risks during the project set-up stage; this is a condition of underwriting the policies.

10. FINANCIAL MODELING OF THE PROJECT

10.1. Construction of the Economic Model

Constructing the economic model of a port project consists of identifying, from the SPC's point of view, all of the forecasted cash flows to be generated by the investment. They fall into three main categories: capital expenditure, operating revenue and expenses, and tax-related matters.

10.1.1. Capital Expenditure Types

Investment breakdown. The production of a capital expenditure (Capex) statement requires the gathering of data that are usually fixed and set out in the various contracts defining the project: the concession contract, construction contract, equipment supply contract, and so forth. The investment breakdown must be sufficiently detailed. The total amount of the investment should be broken down by type of homogenous assets; that is, assets that have similar working lives and methods of depreciation. Capex categories relevant to port projects might include buildings, open areas, port equipment, infrastructure, superstructures, and dredging work. The categorization of Capex must also take account of the type of work envisaged; for example, refurbishment of existing structures and/or new works.

Investment phasing. Traditionally, determining the investment phasing at the set-up stage satisfies two requirements: it records the Capex flows required by the project in the economic model and it fixes the value of the basis of the instruments providing cover against exogenous financial risks (rates and foreign exchange). Also, investment phasing enables the financial analyst to structure the project as accurately as possible according to its ability to support its method of financing. Investment phasing also allows the analyst to reassess the appropriateness of the investment decision by testing real options, for example, to defer the execution of the project, to defer progress of the works, to

abandon the project, to reduce activity, or to make the project more flexible.

Investment currencies. The amount and the required currency of payment by the SPC must correspond to each item on the investment statement. The equivalent of this amount in the model's reference currency can be found by calculating the exchange rate initially set in the macroeconomic hypotheses. The foreign currency breakdown of the Capex thus enables the SPC to ascertain its exposure to exchange risks throughout the life of the concession contract, that is, allowing its net exchange position to be calculated.

Economic depreciation and tax allowances statements. A depreciation statement must accompany the Capex statement for each of the identified headings. It is based on knowledge of the period of depreciation of each asset and the method of depreciation authorized by the tax legislation of the host country of the project, for example, straight-line or double-declining balance.

Confusion often arises between the notions of amortization, depreciation, and tax allowances. This confusion usually stems from the improper use of the same expression to express three different financial concepts. Amortization refers to the capital repayments of financial loans. Depreciation is designed to adjust the economic value of an asset according to the loss of economic value it undergoes with time.

Appropriations to depreciation appear in the profit and loss account, while accrued depreciation appears on the balance sheet, which gives as true as possible an account of the assets of the company. Tax allowances represent the deductions that the tax authorities allow on the investments the SPC makes. While they are, generally speaking, based on the depreciation of the asset, considerations of economic policy also enter into the equation for tax allowances. This is to encourage investors by allowing them to write off their assets over periods shorter than the economic life of the asset. In terms of financial analysis, this overdepreciation leads to an underevaluation of the entity's financial

results at the beginning of the investment cycle and an overevaluation at the end of the cycle.

In the case of port projects, understanding the notion of depreciation is complicated by the nature of the assets entered on the SPC's balance sheet. If the depreciation methods seem easy as far as port equipment or new infrastructure works are concerned, the fact remains that the question of the length of ownership or of the potential life of the refurbished assets is far from obvious. For example, what is the residual working life today of a fully refurbished 30-year-old concrete quay?

Similarly, the distinction that must be made between appropriations to depreciation, which by their nature are not cash flows (referred to as calculated charges), and maintenance charges, which are cash flows, is not always easy. For example, should one depreciate dredging works, and if so by what method, when the maintenance charges relating to maintaining depths close to the quay or in the access channel are already included in the charges account of the profit and loss account? Prevailing practice, in fact, is not to depreciate dredging works and access channels.

Residual value of the investment at the end of the concession. There is always an "exit" for any investment, whether it is liquidated, ceded to the concessioning authority, or sold. Thus, inevitably there is a need to assess the residual value of the investment. There are several methods based on the notion of value in use or replacement value. In the port sector it is very difficult to assess the residual value of infrastructures that do not have a true market value at the end of the concession. Therefore, when a residual value methodology is not defined by the project (for example in the concession agreement) Use of the book value of the assets at the end of the term or project horizon is recommended.

10.1.2. Operating Revenues and Expenses

It should be noted that the word "operating" is used here as opposed to the word "construction." This distinction enables one to identify all the

revenues contributing to the formation of the gross operating surplus, the true balance of the operating account. The summary statement of operating revenues and expenses includes:

- An item-by-item breakdown of operating revenue and expenses. The same project may produce very different types of income. It is therefore important to know the various revenue headings according to the type of creditors and any interdependence between them.
- A fixed (annual percentage that does not depend on the level of production) and proportional (amount per production unit) breakdown for each of the various headings. This exercise, which is difficult to perform in practice, is fundamental in terms of financial analysis for determining the company's economic break-even point and for assessing the level of risk attached to the formation of the gross operating surplus.
- The foreign currency or currencies for each of the revenue and expense headings.

10.1.2.1. Operating Revenue and Charges in Terminal Management Operations. The various sources of revenue produced by the operation of a port project stem directly from the contents of the concession granted by the port authority. The revenues break down into categories within the framework of a port project:

- Port dues, which are distributed between dues on ships and dues on cargoes and typically cover the use of the port's basic infrastructure.
- Services to ships, for example, piloting, towing, stores, bunkering.
- Estate revenues, which constitute a significant source of revenue for port authorities and an operating charge for terminal operators.
- On-board and on-land services to cargoes: for example, cargo handling, storage, and packaging.

- Revenue from administrative operations.
- Miscellaneous, for example, equipment rentals.

The main items making up operating charges include maintenance charges, personnel charges, and the operating royalty due under the concession contract.

10.1.2.2. Operating Finance Requirement.

Traditionally, a company's operating finance requirement is determined from an analysis of the company's operating cycle: production, storage, and marketing. In the case of a terminal operator, the operating cycle is simply the delivery of the service rendered to its customers. It corresponds to the cash advance or working capital that the company must have at its disposal between the time it begins operating and the time it begins receiving payment for its services. There are four factors that determine a company's need for working capital:

1. Volume of business (the more turnover increases, the higher the need).
2. Length of operating cycle (the longer the cycle, the higher the need).
3. Customer or supplier credit policy (the longer the customer payment time, the higher the need; the reverse is true with regard to supplier credit policy).
4. Operating cost structure (the more operating costs increase, the higher the need).

10.1.2.3. Operating Account Balance. The gross operating surplus (GOS) is the first indicator of revenue produced by the operation of the SPC. It is measured by subtracting operating charges from operating revenue. In practice, it forms the balance of the operating account. In jargon, the SPC is said to achieve basic equilibrium if its GOS is positive. Changes in the operating finance requirement should be deducted from the calculated GOS. One then gets the operating cash surplus (OCS), which is a cash flow, unlike the GOS, which is an accounting aggregate. The OCS will subsequently be included in the cash flow statements.

10.1.3. Tax Flows

Tax flows are all the cash flows resulting from the impact of the tax system on the project. In addition to the deductibility of financial charges, which will later need to be built into the financial model (cash flow statements), the tax flows relate to taxes on company profits and the (total or partial) carrying over of tax losses from previous years.

Traditionally, corporation tax is calculated by multiplying a rate, which can vary from country to country, by a basis of taxation, which is determined according to the type of investment made. While it is easy to obtain the rate of corporation tax, calculating the basis of taxation is difficult as it requires principles of accounting established by the tax legislation of the host country.

Tax losses from previous years can be carried forward over a number of years depending on national legislation. Losses carried over in this way can then be considered as a tax credit granted to the SPC. In the financial model, this calculation is important to include to avoid overestimating the impact of corporation tax on the net profitability of the investment.

10.2. Construction of the Financial Model

A financial model of the project traditionally involves the production of three financial statements: the cash flow statement, the income statement, and the balance sheet.

10.2.1. Cash Flow Statement

Cash flow statements show all the company's incoming and outgoing cash flows. They therefore include all the cash flows involved in the establishment of the operating cash surplus and all Capex.

Capex stems directly from the choice of the financial resources needed to accumulate financial capital. It refers to equity and debt invested in the company by capital providers (shareholders and lenders).

Equity-related capital expenditure refers to increases in capital granted to the project by shareholders on the one hand and a return paid on the invested capital on the other. With regard to the latter, this is directly related to the dividend payment policy decided upon by the shareholders and accepted by the lenders.

The most commonly used method for modeling dividends consists of distributing the maximum profit (after tax and any reserve obligations) up to the value of the available cash. Models usually provide what are called reserve accounts, the purpose of which is to freeze any cash flow surplus from the project until the total value of these accounts reaches a certain minimum level (usually set by the banks). This minimum level is usually set at six months of debt service.

Capex related to financial debts and quasi-equity is entered in a flow statement called a debt service account. Traditionally, there are five headings in this account, which are:

- Balance at beginning of period.
- Drawings on the credit.
- Financial costs (including interest on capital paid during the construction period).
- Repayment of loan principal.
- Balance at end of period.

The order of subordination of the loans must be clearly shown in the model.

In virtually all tax systems it is common to allow the deduction from income of the financial charges of the SPC. These financial charges represent the interest paid by the company on the loans it takes out. However, repayment of the loan principal, which relates to the project's assets, has already been depreciated in the operating profit/loss and is not a deductible expense.

10.2.2. Profit and Loss Account (income statement)

The purpose of the profit and loss account is to determine the amount of corporation tax, the net profit/loss, and to model dividend payments

to shareholders. The main stages of the calculation enable the principal interim financial balances to be determined:

- Gross operating surplus.
- Operating profit/loss.
- Financial profit/loss.
- Current pretax profit/loss.
- Corporation tax.
- Net profit/loss.

It should be stressed that an extraordinary profit/loss forecast is fairly exceptional in this type of operation.

10.2.3. Balance Sheet

The SPC's balance sheets enable the company, investors, and others to monitor the changes in the financial structure of the company throughout the life of the project. It should be remembered that, unlike an accounting balance sheet, the items on the asset side of a financial balance sheet are shown at their gross value. The deduction of the accrued depreciation of these gross values appears under the liabilities of the SPC.

REFERENCES

Publications

- Benichou, I., and D. Corchia. 1996. "Le Financement de Projects." Editions ESKA.
- Cass, S. 1996. *Port Privatization: Process, Players and Progress*. Cargo System IIR Publications Ltd.
- Chance, Clifford. 1991. "Project Finance."
- Cohen, E., and C. Henry. 1997. *Service public, Secteur public*. Conseil d'Analyse Economique, La documentation Française.
- Courtot, H. 1998. "La gestion des risques dans les projects." *Economica*.
- Denoix De Saint Marc, R. 1996. *Le service public*. Rapport au Premier Ministre, Collection des rapports officiels, La documentation Française.
- Flora, J., and S. Holste. 1994. "Public/Private Partnerships: Roadway Concessions." Transport Division, World Bank.
- IAPH (International Association of Ports and Harbors). 1999. *Institutional Survey*.
- Martinand, C. "L'expérience Française du Financement Privé des Equipements Publics." *Economica*.
- Nevitt, P. K., and F. Fabozzi. 1995. *Project Financing* (sixth edition). Euromoney Publications.
- Peters, H. J., and M. Juhel. "Changing Role and Functions of Ports: Addressing the Reform Agenda." TWUTD, World Bank, Washington DC.
- Shaw, N., K. Gwilliam, and L. S. Thompson. 1996. "Concessions in Transport." TWUTD, World Bank, Washington, DC.
- Stoffaës, C. 1995. *Services publics, question d'avenir*. Rapport de la commission du Commissariat Général du Plan, Editions Odile Jacob/ La Documentation Française.
- World Bank Group. "Procurement for Private Infrastructure Projects." World Bank Group, Washington, DC.
- UNCTAD (United Nations Conference on Trade and Development). 1998. "Guidelines for Port Authorities and Governments on the Privatization of Port Facilities." UNCTAD.

Reviews and Articles

- Behrendt, D. K., and W. Thomson. 1997. "Port Ownership: Public Responsibility or Private Enterprise." *Ports and Harbors* (October).
- Chapon, J. 1998. "Réflexion pour une politique portuaire européenne."
- Chapon, J. "Partenariats public/privé en matière portuaire." Conférence CIMER 98, Saint Denis de La Réunion. 1999. Published in *Transports* No. 394 (March–April).
- ENPC. "Gestion and analyze financière, Suivi financier des contrats long terme." module.
- Euro News. 1997. "Engineering Consultants: Where Would Europe Be Without Them?" Special edition, No. 27, Project Financing, EFCA (September).

- Juhel, M. H. 1999. "Global Challenges for Ports and Terminals in the New Era." *Ports and Harbors* (March).
- Martinand, C. "Politiques de transport." ENPC Module.
- Monpert, J. Y. 1998. "Le contexte des privatization and les acteurs: motivations and attentes des opérateurs—le point de vue de SAGA / BOLLORE." AFD Conference, 19/10/98.
- Mountford, R. 1997. "Financing the Development of Ports." *Ports and Harbors* (November).
- Orsini, J. A. 1995. "L'appréciation des risques inhérents au projet." Paper presented at Le montage des Financements de Projects Seminar, Management Global Information (November).
- PdI (Port Development International). 1994. "A Private Affair." Privatization supplement, PdI (September).
- Ratheaux, O. 1996. "Options de gestion des ports maritimes, Cas des ports africains." AFD
- Rezenthel, R. 1996. "Les régimes portuaires dans le monde." NPI, 30 December.
- Rezenthel, R. 1996. "Les régimes portuaires and le droit de la concurrence." NPI, 30 December.
- Rezenthel, R. 1997. "Les concessions portuaires." Gazette du palais (September).
- Rezenthel, R. 1998. "La délégation de service public and les concessions portuaires - Doctrine." DMF 583 (June).
- Smagghe, J. 1999. "L'évolution institutionnelle des ports." Colloque Africa Port 2000, Lomé (January)
1996. "Major issues in transport and communication: Concepts and Guidelines for the Implementation of the Commercialization and Privatization of Ports." *Ports and Harbors* (April).
1998. "Major issues in transport, communication, tourism and infrastructure development: Commercialization and Private sector Involvement in Ports." *Ports and Harbors* (November)
1998. "Les financements internationaux d'infrastructure: la fiscalité des BOT." *Les ECHOS* 12 May.

APPENDIX: RISK CHECKLIST— PRINCIPAL RISKS IN A PORT PROJECT

I. Country Risk

A. Government/Administration

- Stability
- Reputation (negotiations, administrative inefficiency)
- Links established
- Concessioning authority
- Political risk: low, medium, high

B. Currency

- Revenue in foreign currency?
- Revenue in local currency?
- Stability of local currency over last few years
- Convertibility of local currency
- => Exchange risk: low, medium, high

C. Social

- Does the operation induce a major reduction in personnel?
- If so, is a redundancy scheme planned?
- Funded? By whom?
- Must a proportion of local personnel be taken on?
- Qualification of local labor?
- => Social risk: low, medium, high

D. Taxation

- Level of knowledge
- Profits tax?
- Sales tax?
- Withholding on dividends or intragroup transactions?
- Stability of fiscal system
- => Tax risk: low, medium, high

II. Traffic Risk

A. Market

- Activity
- Traffic established? (stable, sharp fluctuations, or steady growth)
- New traffic
- Growth factor
- General economic activity
- Sector/domain activity
- Acquisition of market share
- Previous quality of service
- Nonexistent

Poor/fair/good

=> Prediction reliability: poor/fair/good

Customers

Identified major customers

“Atomized” market

Competition/captive traffic

Present situation

Competitor terminal in port?

Competitor terminal in country?

Competitor corridors?

Traffic volatile or stable?

Future situation

Contractual guarantee of exclusivity?

Entry barriers?

Risk of changes: low, medium, high

Risk of competition: low, medium, high

B. Obligations

Public service obligations

Technical

Minimum capacity

Performance standards

Tariffs

Free rates

Price cap

Escalation formulas

Exemptions?

Fee payable to concessioning authority

Up-front fee?

Fixed annual part: fixed amount, judgment criterion?

Variable annual part: fixed amount, judgment criterion?

Concessioning authority subsidy

Investment

Fixed annual part: fixed amount, judgment criterion?

Variable annual part?

Guaranteed traffic? Cost + fee?

C. Guarantees

Extra franchise port services

What port services do my customers require?

Who is in charge? (me, public or private port authority, potential problem)

Level of service guaranteed?

Level of service satisfactory?

Price levels satisfactory?

Pilot service

<ul style="list-style-type: none"> Berthing services Haulage Buoying Maintenance of access Maintenance of basins Maintenance of protection structures Other Operating hours for these services 	<ul style="list-style-type: none"> Work and supply contracts Concessionaire-employer Approval of concessioning authority required? Call for tenders obligatory? Thresholds? Maintenance standards imposed? Construction period/commissioning date <ul style="list-style-type: none"> Underestimated Reasonable Comfortable Penalty level Operation Public suppliers (water, electricity, and so forth) Safety rules Subcontracting authorized/approval
<ul style="list-style-type: none"> Degree of sensitivity to inspection <ul style="list-style-type: none"> Customs Veterinary and phytosanitary Other Vessel waiting time Priorities granted Land transport What modes of transport are used for my traffic? <ul style="list-style-type: none"> For each mode: <ul style="list-style-type: none"> Capacity of operators Quality of service of operator(s) (time taken, security, and so forth) Obstacles to the work of these operators (regulatory, political, and so forth) 	
III. Project Risks <ul style="list-style-type: none"> Investment amount Dredging Infrastructures Buildings Facilities Missions Design Construction/installation Rehabilitation/repair Maintenance (infrastructure, superstructure, and dredging) Operation Security Obligations relating to investments Functional specifications Technical specifications Functional specifications related to a threshold (future subject) Information supplied and technical specifications imposed Investigation campaigns Contractual information? Preliminary design Detailed design 	IV. Contractual Risks <ul style="list-style-type: none"> Status of project company State or concessioning authority has blocking minority interest? Proportion of capital reserved for local investors? Contracts with third parties <ul style="list-style-type: none"> What contracts taken over by concessionaire? Concessioning authority's approval required for signature of new contracts? Bonds <ul style="list-style-type: none"> Nature of bonds Amount Call conditions Consequences of legislative regulatory changes <ul style="list-style-type: none"> Borne by concessioning authority Borne by concessionaire or not specified Possibilities for recourse Contract revision <ul style="list-style-type: none"> Instigation of concessioning authority Instigation of concessionaire No provision Force majeure <ul style="list-style-type: none"> Causes Procedures Early termination <ul style="list-style-type: none"> Concessioning authority's request: causes, procedures

Concessionaire's request: causes,
procedures

Disputes

Possibilities for claim

Contract law

Arbitration clause

V. Financial Aspects

Franchise period

Project IRR over this period

Payback period

VI. Tender Assessment Criteria

Preselection

Technical assessment

Financial assessment



PORT REFORM TOOLKIT

SECOND EDITION

M O D U L E 6

PORT REGULATION MODULE



THE WORLD BANK

© 2007 The International Bank for Reconstruction and Development / The World Bank

All rights reserved.

The findings, interpretations, and conclusions expressed herein are those of the author(s) and do not necessarily reflect the views of Public-Private Infrastructure Advisory Facility (PPIAF) or the Board of Executive Directors of the World Bank or the governments they represent.

Neither PPIAF nor the World Bank guarantees the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of PPIAF or the World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

The material in this work is copyrighted. Copyright is held by the World Bank on behalf of both the World Bank and PPIAF. No part of this work may be reproduced or transmitted in any form or by any means, electronic or mechanical, including copying, recording, or inclusion in any information storage and retrieval system, without the prior written permission of the World Bank. The World Bank encourages dissemination of its work and will normally grant permission promptly.

For all other queries on rights and licenses, including subsidiary rights, please contact the Office of the Publisher, World Bank, 1818 H Street NW, Washington, DC 20433, USA, fax 202-522-2422, e-mail pubrights@worldbank.org.

ISBN-10: 0-8213-6607-6

ISBN-13: 978-0-8213-6607-3

eISBN: 0-8213-6608-4

eISBN-13: 978-0-8213-6608-0

DOI: 10.1596/978-0-8213-6607-3

MODULE SIX CONTENTS

1. Introduction	267
2. Regulatory Concerns When Formulating a Port Reform Strategy	268
2.1. How Ports Compete	270
2.2. Assessing Port Sector Competition	271
2.2.1. Transport Options	272
2.2.2. Operational Performance	272
2.2.3. Tariff Comparisons	273
2.2.4. Financial Performance	274
2.3. Costs of an Inadequate Regulatory Framework	274
3. Strategies to Enhance Port Sector Competition	277
3.1. Structural Strategies	277
3.2. Structural Remedies	279
3.3. Regulatory Strategies	280
3.4. Decision Framework for Selecting Port Competition: Enhancement Strategies and Remedies	282
4. Designing a Port Regulatory System	283
4.1. Step 1: Specify Regulatory Objectives and Tasks	285
4.2. Step 2: Conduct a Legal Review of the Regulatory System	286
4.3. Step 3: Determine Institutional Arrangements for Regulatory Oversight	286
4.4. Step 4: Determine Degree of Regulatory Discretion	293
4.5. Step 5: Identify Appropriate Regulatory Tools and Mechanisms	294
4.6. Step 6: Specify Operating and Financial Performance Indicators	296
4.7. Step 7: Establish an Appeal Process and Procedures	299
4.8. Step 8: Incorporate Regulatory Details into Laws and Contracts	299
5. Summary and Conclusions	302
Annex A. Port Tariffs: General Structure, Items, and Flow of Charges	304
Endnotes	308
References	310

BOXES

Box 1: Intraport Competition in Buenos Aires, Argentina	271
Box 2: Port Sector Competition Factors	272
Box 3: The Case of Israel: From National Monopoly to Port Monopoly	275
Box 4: Potential Anticompetitive Behavior in the Port Sector	276
Box 5: Predatory Pricing and Service Bundling in Cartagena, Colombia	276
Box 6: Competition Enhancement	277
Box 7: Dividing the Port into Terminals to Induce Competition	279
Box 8: Terminalization in Limited-Volume Ports: The “Overlapping Competition” Strategy	280
Box 9: Subsidy Bids for Management Contracts in Low-Volume Ports	281
Box 10: Checklist for Port Sector Restructuring or Unbundling	281
Box 11: Decision Framework for Port Competition Enhancement	282
Box 12: Reviewing Port Regulatory Responsibilities in Victoria, Australia	287
Box 13: Establishing a Port Sector Regulatory Agency in Colombia	288
Box 14: A Simple Port Regulatory Structure for Sri Lanka	290
Box 15: Safeguards for Creating an Independent Regulatory Body	292
Box 16: Reconciling Independence with Accountability	293

Box 17: Price Cap versus Rate-of-Return Regulation	295
Box 18: Port Production Process	297
Box 19: Port Performance Indicators	300
Box 20: International Arbitration	301
Box 21: Checklist of Regulatory Items for Port Operating Contracts	302
Box A-1: Relative Weights of Different Port Charges	304
Box A-2: Relationship between Port Charges and the Location Where the Charge is Incurred	305
Box A-3: Transaction Complexities Pre- and Postprivatization	305
Box A-4: Port Charges in Miami, Florida	306
Box A-5: Port Charges in Cartagena, Colombia	307

Acknowledgments

This Second Edition of the Port Reform Toolkit has been produced with the financial assistance of a grant from TRISP, a partnership between the U.K. Department for International Development and the World Bank, for learning and sharing of knowledge in the fields of transport and rural infrastructure services.

Financial assistance was also provided through a grant from The Netherlands Transport and Infrastructure Trust Fund (Netherlands Ministry of Transport, Public Works, and Water Management) for the enhancement of the Toolkit's content, for which consultants of the Rotterdam Maritime Group (RMG) were contracted.

We wish to give special thanks to Christiaan van Krimpen, John Koppies, and Simme Veldman of the Rotterdam Maritime Group, Kees Marges formerly of ITF, and Marios Meletiou of the ILO for their contributions to this work.

The First Edition of the Port Reform Toolkit was prepared and elaborated thanks to the financing and technical contributions of the following organizations.

The Public-Private Infrastructure Advisory Facility (PPIAF)

PPIAF is a multi-donor technical assistance facility aimed at helping developing countries improve the quality of their infrastructure through private sector involvement. For more information on the facility see the Web site: www.ppiaf.org.

The Netherlands Consultant Trust Fund

The French Ministry of Foreign Affairs

The World Bank

International Maritime Associates (USA)

Mainport Holding Rotterdam Consultancy (formerly known as TEMPO), Rotterdam Municipal Port Management (The Netherlands)

The Rotterdam Maritime Group (The Netherlands)

Holland and Knight LLP (USA)

ISTED (France)

Nathan Associates (USA)

United Nations Economic Commission for Latin America and the Caribbean (Chile)

PA Consulting (USA)

The preparation and publishing of the Port Reform Toolkit was performed under the management of Marc Juhel, Ronald Kopicki, Cornelis "Bert" Kruk, and Bradley Julian of the World Bank Transport Division.

Comments are welcome.

Please send them to the World Bank Transport Help Desk.

Fax: 1.202.522.3223. Internet: Transport@worldbank.org

6

MODULE

Port Regulation: Overseeing the Economic Public Interest in Ports

SECOND EDITION

1. INTRODUCTION

There is a strong public interest in ensuring that ports operate efficiently and safely, that fair and competitive services are provided, and that ports support and foster economic development locally and nationally. The public interest in ports stems from the vital role that ports play as gateways of economic trade and commerce for most nations. In 2004, international seaborne trade totaled approximately 6.7 billion tons of international commerce, which corresponded to 27,635 billion ton-miles of maritime activities (Review of Maritime Transport, 2005 UNCTAD). With the globalization of the world economy, a nation's economic competitiveness is linked increasingly to its ability to ship raw materials, intermediate goods, and final products efficiently and economically. Excessive port costs or delays can prompt investors to locate new production facilities in other countries or regions. In many countries, high port costs have an economic impact similar to a generalized import duty, increasing the cost of all imported goods.

The public is also interested in having ports operate safely and with minimal environmental impact. An oil spill within a port's harbor can damage the coastal environment and devastate local fishing and tourism sectors for several years. Port operations involve the use of heavy machinery and handling of dangerous cargo

that, without proper systems and safeguards, can result in serious and sometimes fatal injury to port laborers or third persons present in the port.

Ensuring the efficient and competitive functioning of a port in a context of limited or weak

competition is the purpose of economic regulation of ports. Economic regulation typically involves intervention in the functioning of markets in terms of setting or controlling tariffs, revenues, or profits; controlling market entry or exit; and overseeing that fair and competitive behavior and practices are maintained within the sector. The determination of when economic regulation of ports is necessary and how to tailor the intervention to the particular port competitive environment is the principal focus of this module.

While not discussed at length in this module, there are other public interest concerns regarding technical, environmental, and social aspects of port operations. These other areas include:

- Technical oversight of port operations and services, such as navigation and safety (for example, licensing of pilots, berthing rules, or emergency plans).
- Environmental oversight of the disposal of dredging spoils; discarding of hazardous materials and liquids used in port operations and maintenance; contingency planning for environmental and safety incidents; ensuring sound land-use planning and coastal preservation; and monitoring compliance with international standards for vessel wastes (for example, the International Convention for the Prevention of Pollution from Ships [MARPOL]).
- Social or administrative oversight of the equitable and just treatment of port workers, and review of labor contracts, health benefits, and working conditions.

In most instances, guidelines and procedures for oversight of these elements of the public interest have already been established and their effectiveness is not materially altered by port reforms, although they need regular adaptation and updating.

This module is intended to assist public officials in designing an economic regulatory framework that will keep ports cost-effective and responsive

to changing demand. The module provides guidance on how to:

- Identify regulatory requirements and issues to be considered when developing a port reform strategy.
- Design a port regulatory system.
- Formulate an institutional strategy for establishing the regulatory structure and capabilities to perform the relevant regulatory functions.
- Select appropriate regulatory techniques and instruments under a spectrum of port reform options and competitive conditions.
- Prepare a checklist of items that need to be included in port reform concession or operating agreements.
- Specify operational and financial information necessary for monitoring performance of terminal operators.

Public officials can use the module when initially formulating a port reform strategy or for establishing an effective postreform port regulatory system.

2. REGULATORY CONCERNS WHEN FORMULATING A PORT REFORM STRATEGY

The decisions about reform strategy, industry structure, and regulatory frameworks are closely linked. Therefore, regulatory issues, options, and their consequences should be considered at the early stages of the reform process, and not left until other key decisions about reform strategy have been made. As demonstrated by the reform experience in other sectors, to do so can increase the regulatory burden and cost, restrict the range of options that may be available to the regulator, and risk incongruity between regulatory requirements and institutional capacity.

Governments do not need to undertake detailed design of the regulatory framework when they are first considering private sector participation. However, they should take regulatory needs and

costs—and their own regulatory capacity—into account when making choices about private sector participation. And when embarking on the first private sector participation in ports, it is important to consider whether the regulatory system proposed for the first transaction will preclude the regulatory options that might be most appropriate as private sector arrangements become more common. A government that fails to get the structural and regulatory package right from the outset can face an immensely costly, time-consuming, and acrimonious process to rectify matters later.

Considering regulatory issues before formulating the framework of the contract has a number of important purposes:

- To avoid legal challenges to the privatization program or transaction.
- To identify any constraints in the law that would limit the ability to transfer services to private providers or the range of options that might be available for the privatization approach.
- To define the regulatory role of the government in the reform and postreform effort and related institutional framework.
- To anticipate the competitive environment (the extent of competition) of the port sector and the need for competition monitoring or economic regulation.
- To consider the potential for restructuring the port sector to make it more conducive to regulation by competitive forces rather than government oversight.
- To determine the range of strategies that might be available to the regulator to induce competition or discourage anti-competitive behavior.
- To identify the form of interventions that the regulator may take when anti-competitive behavior occurs.
- To determine what issues not specifically addressed in the existing or proposed law

need to be addressed on a transaction-specific basis.

All of these purposes are closely related. For example, as was shown in the Malaysian experience at Port Klang, the failure to have an adequate legal framework in place prior to the privatization effort can impose substantial delays as legislators debate legislative actions to facilitate the privatization process. The continuing refusal of the Sri Lankan government to corporatize or privatize its publicly owned container terminal in Colombo has delayed the necessary port expansion for years. And Colombia's failure to properly define anticompetitive behavior beforehand led to the need for the regulator to constantly solicit legal opinions before intervening.

In many countries, the broad regulatory framework may not adequately support a private sector arrangement. Private sector ownership of port assets may be prohibited by the legal system. Tariff setting responsibility may reside within an operating port authority that would compete with the private operator. But governments can still make private sector participation in ports work by taking one or both of the following actions¹:

- Choose a private sector arrangement that reduces the risks associated with deficiencies in the regulatory framework. For example, a fee-based management contract may bring in technical capability and management expertise if investment risks rule out a private sector interest in a concession.
- Develop appropriate regulatory capacities. For example, if the national law gives responsibility for asset ownership and service provision to a level of government that has limited capacity to regulate or is vulnerable to short-term political interests, consider separating ownership from regulatory oversight and locate the regulatory body at a higher level of government.

Prior to undertaking port sector reform, the public interest in ports has typically been vested in a public port authority. In a traditional port,

the public port authority provided all basic port services and functions (for details see Module 3). There was no need for a separate regulatory agency as the public port authority was the institution charged with operating the port as a public monopoly consistent with the public interest.

Under port sector reforms, many ports have evolved into landlord port authorities where facilities are leased to private operators, who in turn directly provide their services to carriers and shippers. In this situation, private operators may provide services previously provided by the public port authority, such as pilotage, tug assist, vessel stevedoring, cargo handling, storage, and yard services. Private operators will be motivated by profit maximization objectives. They may not necessarily provide facilities or services that are of economic, environmental, or social value if doing so would conflict with profit maximization. This creates the need for regulatory oversight to ensure that the public interest is upheld.

2.1. How Ports Compete

Generally, port-related competition can be defined as one of three types: interport, intra-port, and intraterminal. Interport competition arises when two or more ports or their terminals are competing for the same trades (for example, New York and Halifax; Hong Kong and Singapore; Los Angeles, Long Beach, and Oakland; or Rotterdam, Hamburg, Bremerhaven, and Antwerp). Interport competition may be for origin-destination traffic or for transit traffic. Intraport competition refers to a situation where two or more different terminal operators within the same port are vying for the same markets (for example, Stevedoring Services of America, Evergreen, and Hutchison International Terminals in Manzanillo-Cristobal, Panama). In this case, the terminal operator has jurisdiction over an entire terminal area, from berth to gate, and competes with other terminal operators in the port. See Box 1 for a similar example of intraport competition in Buenos Aires, Argentina. Intraterminal competition refers to companies competing to provide the same services within the same terminal

(for example, the stevedoring companies Estibadora Caribe and COOPEUNITRAP in Port Limon, Costa Rica). However, this type of competition, applied within the framework of the tool port system, in general does not result in stable labor relations and optimum port development (see Module 3).

Competition also helps ensure that the private sector passes savings on to users and reduces opportunities for monopolistic abuses. A private terminal operator can be presumed to be more tempted than a public port authority to exploit any market power that it may have. But one should not forget that experience has shown that public sector monopolies are often stronger, more authoritarian, and noncompromising than private sector monopolies. Moreover, they are often more difficult to fight as they are either claimed not to exist or to be justified for the public good. As long as a market is competitive, private operators cannot price much above their long-run marginal costs; they may be able to do so in the short run if demand temporarily outstrips supply, but only for as long as it takes to provide additional capacity. If the markets are noncompetitive, however, public port or terminal operators are often able to sustain prices well in excess of marginal costs whether they are located in developed or developing countries. In practice, governments consider such ports as “cash cows” and are often reluctant to limit or lower port tariffs and terminal handling charges. Private terminal operators will equally be tempted to raise their tariffs above the level that is economically reasonable. In such a case, tariff regulation by an independent regulator is the answer, although the history of government regulation attests to difficulties in preventing misuse of the dominant position of such operators.

When effective competition can be established and maintained in the relevant markets and activities, privatization has proven to have great potential for reducing costs and improving service quality. Without competition, privatization can still bring some improvements, but the gains are relatively limited.

Box 1: Intraport Competition in Buenos Aires, Argentina

Following the Ports Law of 1993, the Argentine government decided to offer concessions for six terminals at the Puerto Nuevo Port Authority facilities. Bidders submitted separate technical and financial proposals linked to anticipated tonnage. Essentially, those guaranteeing the most traffic with the best technical proposal would win. Five concessions were awarded, but only two concession holders would control facilities capable of handling containers.

Single operators were charged with operating their respective terminals, controlling the entire berth-to-gate operation. Upon the take-over of the terminals by the successful bidders, the terminal operators had to plan, finance, and commission extensive civil structure improvements and undertake heavy equipment investments. Meanwhile, they became immediately liable for their payment obligations to the port authority. As part of their concession obligations, terminal operators had to pay the port authority concession payments based on \$4 per ton for imports and \$2 per ton for exports. They were also prohibited from pricing collusion, and would have to adhere to safety and environmental legislation. And, in an effort to mitigate the impacts on former port authority employees, the terminal operators had to agree to employ some of the former employees or, alternately, provide a severance payment program. As a result, the terminal operators all began operations with overstaffed work forces.

The concession agreements contained performance guarantees; in the first year, 40 percent of established target volumes would have

to be met before the port authority imposed financial penalties. This percentage would increase in stages to 60 percent and 80 percent in subsequent years. In return, the terminal operators would get the use of the public facilities, could provide whatever services they wanted, and could set tariffs as they saw fit as long as the tariff structure adhered to the one prescribed by the port authority.

While great attention was drawn to the terminals within the confines of the city, another port facility was being developed in South Dock, just outside the city under the jurisdiction of the Province of Buenos Aires. Bidders at Puerto Nuevo were aware of this site and had discounted the possibility that it could be converted to a full-fledged container terminal. However, a consortium of local and foreign investors was granted a 30-year concession for South Dock by Buenos Aires Province on terms far more favorable than those afforded the Puerto Nuevo operators by the federal government (see also Module 4, Box 20).

The Puerto Nuevo bidders were obviously concerned with the entry of another competitor. Container growth was projected to be somewhat modest given available capacity, so competition had already developed to a high level. Due to labor cost savings and lower wharfage fees, the South Dock facility had lower costs than Puerto Nuevo operators at \$40 per move.^a In 1997, the South Dock terminal handled 366,000 TEUs, compared to 600,000 TEUs handled at Puerto Nuevo facilities.

Source: Author.

^a 1997. "Terminal velocity." *Containerization International* June, p. 95.

2.2. Assessing Port Sector Competition

This section presents a conceptual framework for assessing the extent of competition within a port sector. The conceptual framework may be used when deciding the optimal form and scope of port modernization or in determining whether regulatory intervention may be warranted after modernization. The framework is not intended to determine definitively that a particular port or terminal operator is engaged in anticompetitive behavior. Instead, it indicates conditions where

anticompetitive behavior may occur. When these conditions exist, the framework serves effectively as a red flag to indicate to the regulatory authority that the situation should be closely monitored. Alternatively, the framework could be applied when complaints are received to determine if in fact there may exist sufficient grounds for the complaint. Factors indicative of the extent of market competitiveness include:

- Transport options.
- Operational performance.

- Tariff comparisons.
- Financial performance.

Box 2 presents an overview of the key elements of a conceptual framework for considering these factors. Each of the framework's salient features is described below.

2.2.1. Transport Options

The most important indicator of competition is the degree to which a shipper has transport options (substitutes). The choices or options available to a shipper or consignee largely determine the extent of competition within the port sector. In examining options, one should analyze a specific cargo flow as defined by cargo type, shipping characteristics, inland point, and direction (import or export). The number of options is defined according to the technical capabilities of the ports and their available inland connections. For example, there may be situations in which one port has already captured a large share of the cargo market. One might, therefore, label this as a noncompetitive market. However,

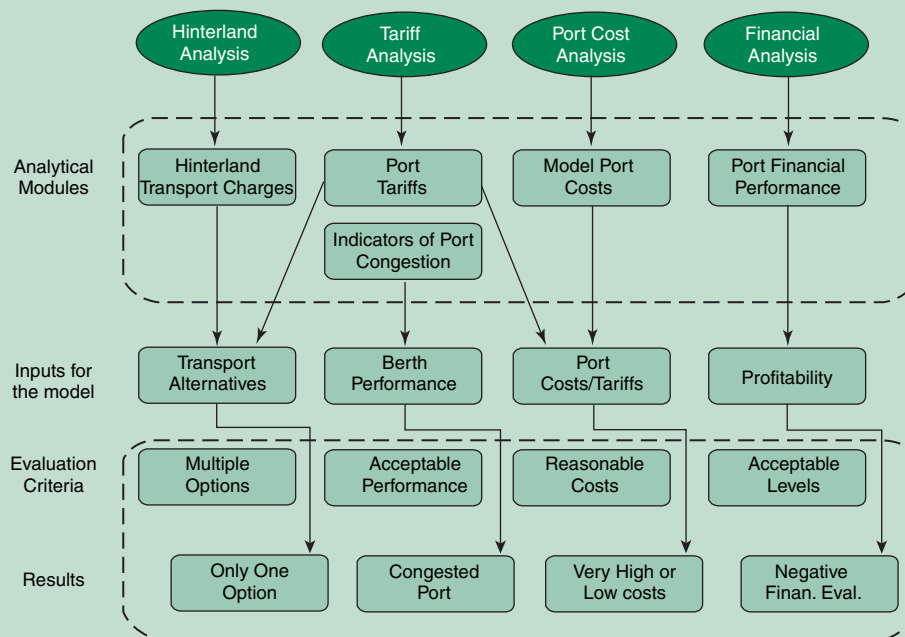
the market power of this port (or its capability to increase the price) would be limited if other ports could provide an attractive alternative and keep competitive pressure on the other port's prices.

The availability of competitive options is based not just on the existence of a physical service alternative, but on overall transport system costs (land and port). Thus, the first step in assessing the competitiveness of the port and transport system is to identify the lowest cost option. Then, the competitiveness of each option is determined by comparing it to the lowest cost option, defined here as cost proximity. A cargo flow that moves through a system with many options and possessing close cost proximity (small cost differentials) faces a highly competitive market setting. Conversely, if there are few options and the cost differentials among the options are large, the market setting is defined as noncompetitive.

2.2.2. Operational Performance

Operational performance indicators can be used to assess the relationship between supply and

Box 2: Port Sector Competition Factors



Source: Author.

demand for port services in a particular country. Presumably, a chronic shortage in supply indicates a possible tendency toward monopolistic practices by a port or terminal operator. However, using the supply-demand relationship itself as an indicator may be inadequate because of difficulties in direct estimation of these two market factors.

Instead of the throughput-capacity (supply-demand) ratio, two measures that can indicate a potential shortage in supply of port services can be used: berth occupancy and ship waiting for berth. Both measures are, in fact, two different aspects of one phenomenon, port congestion. Berth occupancy has a direct relationship to capacity utilization in ports where the berthage is the limiting factor of terminal capacity. This, however, is usually not the case in container terminals, where the limiting factor is often the container storage capacity of the yard. Nevertheless, even in container terminals, berth occupancy provides a good indicator for capacity utilization. To provide a more telling picture of a port's operational performance, berth occupancy should be complemented with the berth utilization ratio, which compares the amount of time ships are worked at berth to the total time that the berth is occupied, and with the berth productivity ratio, relating berth occupancy time and berth throughput.

Ship waiting has a direct relationship with berth occupancy. When occupancy is low, there is usually no (or minimal) ship waiting. However, at a certain occupancy level, waiting begins to increase very rapidly. Thereafter, a small increase in the level of berth occupancy results in congestion and long waiting times for ships. Although these two indicators are closely related, both can be examined to obtain a more comprehensive assessment of port congestion.

The input data for berth occupancy are typically readily available from operational reports generated by the ports or terminal operators. The occupancy indicator should be calculated separately for container, general cargo, and bulk ships. For vessel waiting time, the input data are also typically available from port (usually the harbormaster's office) or terminal operator

operational reports. The ship waiting indicator is calculated as the average waiting hours per ship, by type of commodity. Average waiting time is also sometimes compared to average time at berth to produce the ship-waiting rate. The various elements contributing to the waiting time should be analyzed to allow the port authority to precisely identify cases whereby it was the result of nonavailability of port facilities or equipment. Practitioners should be aware that terminal operators are increasingly seeking to acquire the ability from port authorities to offer guaranteed priority berthing windows to secure long term contracts with some of the larger main line vessel operators.

Berth occupancy and utilization and wait time are strong indicators of undercapacity, which in turn may indicate the absence of significant competition.

2.2.3. Tariff Comparisons

The objective in examining tariffs is to determine if the tariff level of a port is within a reasonable range. Presumably, abnormally high tariff levels in a port indicate a tendency to exert market power and employ unfair trade practices. This inflates total port costs, which include charges to shipping lines and cargo. The calculation of port costs should be based on a representative basket of basic services and their respective charges.

An indication of whether tariff levels are within a reasonable range can be based on three comparisons. The current rates of the port under consideration are compared with: (1) historical rates of the same port, (2) rates (tariff differentials) at other ports in the same country, and (3) theoretical rates based on model port costs. Historic rates measure the difference in port costs between the time of analysis and the past, either in the previous year or before a recent rate increase. Differences in port costs (tariff differentials) are examined by comparing a specific port with the average of the country's ports that handle the same cargo (including the port under consideration). Model port costs measure the difference between the actual and theoretical costs of a specific port based on a port cost

model that generates the model costs for a country's ports in general.

2.2.4. Financial Performance

A variety of financial performance measures can be used to examine whether a port has been earning abnormally high profits. The assumption here is that abnormal profits may indicate a noncompetitive market setting and the possibility that a port is engaged in anticompetitive behavior (taking advantage of dominant market power). Economic theory maintains that suppliers possessing monopoly power tend to charge prices that exceed marginal and average costs.

Ideally, a competitive assessment should be based on the comparison of price and marginal cost. However, direct measurement of the difference between price and marginal cost is impractical. The financial profit (net income and earnings) of a port is used as a proxy for the difference between market price and marginal cost.

Presumably, abnormally high profits indicate a noncompetitive setting that, in turn, suggests the possibility of anticompetitive behavior. The level of profit is usually compared to some measure of investment. Two common indicators that relate profit to investment are return on equity and return on assets, and both are typically found in port financial statements or can be calculated from data readily available from the port.²

2.3. Costs of an Inadequate Regulatory Framework

Failure to provide an adequate economic regulatory framework can be very costly in terms of inefficient and high-cost port services. In many countries, excessive port costs function like an additional import duty on all goods entering the country and a tax on exports. Excessive port costs reduce the competitiveness of a nation's products in world markets and can stifle economic growth and development. In fact, shipping lines or conferences may further compound the unfavorable effects inefficient ports have on a nation's economy by imposing penalty surcharges to offset the carrier's operating costs and disruptions to its service rotation or itinerary. Unfortunately, the anticipated

benefits of free trade associated with reduction of import duties and removal of trade barriers may be offset by the inefficiencies of an improperly regulated and noncompetitive port sector.

In some instances, port reform efforts have transferred public ports to single private operators, thereby creating private monopolies for local port services. This type of transfer does nothing to lessen the vigilance governments must maintain if abuses of market dominance are to be avoided. Box 3 presents the experience of Israel, which dissolved its national port authority in favor of individual port operating companies for its three ports. Similarly, in Mexico terminal operations at the ports of Veracruz and Manzanillo were transferred to private operators. However, due to the lack of interport or intraport competition, port users have repeatedly complained about high tariffs and have requested that a regulatory institution be established to limit the monopolistic position of terminal operators.³

Due to the nature of the sector, it is common that even when competition for port services is strong, there may be only two or three direct competitors. Thus, market shares and concentration ratios measured by traditional antitrust techniques would typically be high. In most circumstances, a high industry concentration indicates that conditions are such that they may encourage anticompetitive practices (see Box 4). For example, having few competitors invites pricing collusion, agreements to allocate customers or geographic territories, or the establishment of cartels or boycotts, all of which are typically prohibited in a country's antitrust legislation. Having one dominant firm may also encourage predatory pricing, another practice that is typically prohibited.

After pressure from the European Union, Maersk Line (APM Terminals) and P&O Nedlloyd were allowed to operate two competing terminals. The take-over of P&O Nedlloyd by Maersk Line however, has created the next problem, as these large terminals are now owned by one common shareholder which, again, might violate EU competition rules. In Antwerp, competition between the original

Box 3: The Case of Israel: From National Monopoly to Port Monopoly

Israel's Shipping and Port Authority Act of 2004 introduced a new port management structure with the objective of introducing more competition in the country's port sector. The existing Israel Ports Authority, owner and operator of Israel's three commercial ports, was disbanded and various new port authorities were established.

The main elements of the new law included:

- All Israel port authority assets were returned to the government (including ownership of port land, financial assets, equipment, materials, and superstructure).
- All existing employees were transferred to newly created government companies (see below), with existing salary and working conditions guaranteed.
- Port property rights were transferred to the Israel Ports Company (100 percent owned by the government), which would lease or concession port land to port operators while the legal ownership remains with the government.
- All movable assets and facilities and outstanding obligations and liabilities were transferred to the appropriate companies in the various ports.

The new government-owned (limited liability) port operating companies, one for each port (Haifa, Ashdod, and Eilat), were tasked with the management of the existing terminals as well as the maritime services, including traffic control, pilotage, and towage.

The law also created a Shipping and Port Authority as a governmental unit within the Transport Ministry. Its responsibilities include advising the minister on port service levels, infrastructure planning and development, and systems and port facilities, and the drafting of port regulations.

In addition to the above, the legislation and subsequent ministerial regulations created the position of port manager with (harbormaster's) responsibilities such as vessel traffic control, port clearance, aids to navigation, and marine works.

Analyzing this port management structure it is evident that:

- The various port companies in Haifa, Ashdod, and Eilat are virtually monopolists within their respective port areas, and in practice they will allow only limited intraport competition.
- The development of the ports still is a national issue under the Israel Ports Company, which acts as a national landlord.
- The port companies are also responsible for marine operations, which may give rise to a conflict of interest in the event that more intraport competition is allowed in the future.
- The functioning of the port manager is highly impaired as the marine department's activities are part of the respective port companies.
- The entire structure will generate many competence problems.
- Fair competition within this structure is limited.

Source: Author

three major container operators (Hessenatie, Noord Natie and Seaport/Katoennatie) has always existed, but because of the need to gain in scope and scale, the two main operators have merged into Hesse-Noord Natie. To cope with growth, Antwerp has built a new tidal container port, the Deurganck dock, on the left bank, doubling its handling capacity. On the west side of the Deurganck is Antwerp International Terminal – operated by PSA Hesse-Noord Natie – which started operations in December 2005 and will be fully completed by 2007. To the east is the Antwerp Gateway Terminal – operated by DPW-owned P&O Ports, Cosco Pacific, P&O Nedlloyd (now owned by Maersk), CMA-CGM and Duisport – which started work in

September 2005. All in all, major global terminal operators and shipping lines acquired a substantial stake in Antwerp's container terminal business, thus enhancing intraport competition.

It is the growing scale of the users that makes larger scale operations in ports imperative. With this pressure for increased size, one might ask whether any regulatory framework can ensure the continued existence of more than one container terminal operator. One should keep in mind that in the early years of 2000, the top two Antwerp terminal operator consortiums mentioned above, Hesse-Noord Natie and Seaport/Katoennatie, handled more than 1,000,000 and more than 2,000,000 TEU per year

respectively. Thus, the nominal size of their throughput does not explain the merger in itself.

In an unregulated market, profit may be sought through the creation of a stevedoring company cartel to exclude competitors from access to facilities. Controlling anticompetitive commer-

cial behavior requires a regulatory institution to prevent the acquisition and exploitation of excessive market power. Even without cartelization, wherever there is a financially strong incumbent in a market, there is a danger that anticompetitive behavior will occur (see Box 5).

Box 4: Potential Anticompetitive Behavior in the Port Sector

In the absence of economic regulatory oversight, a port operator with a dominant or monopoly position could attempt to engage in the following anticompetitive practices, driving out potential competitors and increasing costs to port users and the economy at large:

- *Price gouging*: Using monopoly power to charge excessive tariffs for port services.
- *Service bundling*: Extending monopoly power in one area of port operations to another potentially competitive area (also referred to as tying arrangement). For example, a terminal operator's extension of a monopoly position in the provision of cargo handling to require use of their tug assist services rather than obtaining those services from an independent provider.
- *Increasing entry barriers*: Constructing hurdles to increase the share of the market needed to operate at maximum efficient scale, raising absolute costs of entry, or by

tending to foreclose competitors from needed resources or outlets.

- *Raising rival's cost*: Increasing the cost of services required by a rival to place it at a competitive disadvantage.
- *Exclusive dealing*: Requiring suppliers to sell only to them and not to any potential competitor. An example would be restricting a tugboat company from providing service to a rival terminal.
- *Predatory pricing*: Selling services below cost to induce a rival's exit from the market, deter future entry, or dissuade a rival from future competition. An example would be temporarily lowering container handling charges below long-run marginal costs to force a rival out of business.
- *Price discrimination*: Similar to predatory pricing in that selective price discrimination by a powerful seller can eliminate competition or otherwise entrench the discriminating seller's monopoly power.

Source: Author.

Box 5: Predatory Pricing and Service Bundling in Cartagena, Colombia

Law 1 of 1991 placed the responsibility for the direct administration of Colombia's public ports in the hands of regional port societies, which were private sector entities with the state entitled to up to 30 percent of the total shares of the society. To induce investment in gantry cranes, the Cartagena Society received permission to provide cargo handling services in addition to the provision of crane services. This would mean that not only would they compete with the already existing stevedoring companies, but that also they had a clearly advantageous position: they could bundle their service charges for an array of services offered from berth to gate, a strategy that could not be matched by the stevedoring companies since they could offer relatively limited services by comparison.

The Cartagena Society felt compelled to offer stevedoring services as their own business because that is what its nonregional port society competition was doing. For example, a private port in Cartagena (El Bosque) offered pilotage, tug assist, stevedoring, and storage services, and could thus price the services at an all-in-one price. It was later alleged that El Bosque was offering tug assist and pilotage at no cost to the carrier to attract their business. If true, this bundling could constitute a predatory pricing practice in Colombia, which the port superintendent would resolve by setting the prices for all of the pilotage and tug companies in Cartagena.

Source: Author.

3. STRATEGIES TO ENHANCE PORT SECTOR COMPETITION

The previous sections presented the important considerations for determining conditions in which anticompetitive behavior may exist. The lack of transport options, congested facilities, relatively high prices, and high profits alone or in combination may encourage terminal operators and other port service providers to breach the threshold of what may be regarded as acceptable competitive behavior. This section provides a discussion of port sector restructuring strategies that can be used to enhance competition within the port sector, an overview of regulatory strategies and remedies to enforce port competition standards, and a decision framework for selecting port competition enhancement strategies and remedies.

Port sector reformers have two general strategies to choose from when considering how to enhance port sector competition (Box 6): structural and regulatory. Clearly, the preferred strategy is the one that results in more competitors. In a perfect market, characterized by a large number of buyers and sellers, the extent of competition is optimized so prices reflect market efficiencies. Therefore, port sector reformers, in contemplating port reform, should strive toward structural enhancements that increase the number of competitors before resorting to regulatory enhancements. Regulatory enhancements (particularly economic regulation) are

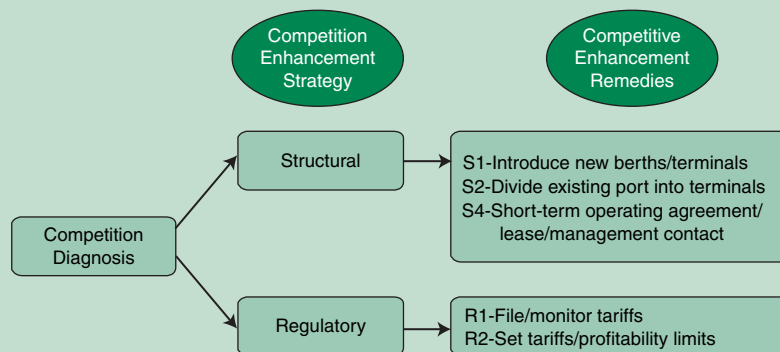
intended to improve efficiency by correcting various market imperfections; essentially, they are aimed at forcing ports to behave as if they were competing in a competitive market. Due to high market concentrations, some form of regulation is often appropriate regardless of the structural strategy.⁴ Box 6 shows how structural and regulatory approaches give rise to potential competition enhancement strategies.

3.1. Structural Strategies

Experience suggests that many of the benefits from involving the private sector stem from competitive pressures, not just the presence of a private owner.⁵ Competitive pressures also affect the amount and appropriate form of sector regulation needed: the more competitive pressures are brought to bear on private operators, the less regulation may be required. So governments—even those with substantial regulatory capacity—stand to gain a great deal from introducing as much competition as the port's traffic and facilities allow.

Competition becomes increasingly likely as an industry becomes more disaggregated. The more the system can be structured to allow entry at different levels, the more competitive pressure can be introduced. And the more competitive pressure there is, the less the need for regulatory intervention.⁶ As discussed later, extensive unbundling may mean sacrificing efficiencies the operator may gain through the bundling of

Box 6: Competition Enhancement



Source: Author.

services, particularly within the terminal area (defined as the area between the berth and the gate). For this reason, “terminalization,” where a single operator controls the berth-to-gate operation, is frequently the preferred approach (with the level of economic regulation depending on the competitive setting, either within the port itself or coming from the outside).

Establishing competition for port services requires three steps. The first step is to examine closely the structure of the sector, assessing market conditions and how the services may be restructured. The next step is to implement the port sector restructuring, creating opportunities for competition in one or more segments of the port sector. If unfettered competition is possible, the process ends. If only limited scope for competition exists, the third step involves establishing regulatory oversight to maintain fair competition and to protect port users. The extent of restructuring, the exact nature of competition, and the objectives of regulation depend upon the physical, institutional, and market characteristics of the sector.

Port restructuring involves trade-offs. Where economies of scope exist, it may be cheaper for a single terminal operator to produce and deliver two or more terminal services jointly than for separate entities to provide services individually. A bundled sector, where all services are organized under one umbrella, also known as a master concession as discussed in Module 4 of the Toolkit, allows exploitation of economies of scope and eases coordination and efficiency among intermediate input suppliers and final service providers. An argument against restructuring also applies when a single provider benefiting from economies of scale is split up to induce competition. However, even in such cases, gains from economies of scope and scale need to be weighed against benefits of cost-minimization due to competitive pressures.⁷

Typically, the private sector would prefer to engage in interport or intraport competition rather than intraterminal competition, and this is understandable because modern cargo

handling techniques most often do not actually allow for efficient intraterminal competition. Even though the private sector investment would normally be greatest under these competitive circumstances, the private sector also has the ability to capture a wider range of revenues. For example, in interport competition, ports will compete for the entire handling charge of perhaps \$200 per container, which captures revenues from the sea buoy to the gate. The value of the handling charge when intraport competition is present might decline to perhaps \$150 per container (berth to gate), and even further to \$100 per container when intraterminal competition (berth only) is present. Competitors in an interport context have a much greater span of pricing strategies for capturing their markets, meaning that at the lowest level (intraterminal competition) rivals will have a much smaller range of pricing flexibility when it comes to their ability to formulate strategies for capturing the activity. In short, competition at this level is vying for a much smaller piece of the pie.

Also from an efficiency standpoint, having a single operator per terminal tends to be preferable because of the direct control the operator would have over the range of activities from berth to gate. In addition, because of greater revenue capturing ability, a greater investment can be leveraged from the operator assuming a concession period adequate for full investment cost recovery. However, if cargo volume is sufficient to support only one operator, then government has to weigh the trade-offs between granting a monopolistic position to the sole operator versus the potential loss of efficiency resulting from intraterminal competition. For the intraterminal competition option, mainly prevailing in the tool port system (see Module 3) for general cargo traffic, revenues are collected only from vessel stevedoring. In France, intraterminal competition was promoted and terminal areas were dedicated to different operators. The result, however, was a very inefficient operation. Ultimately, because of competition from more efficient European ports, this arrangement was abandoned.

3.2. Structural Remedies

There are a number of actions governments and port authorities can take to enhance competition. Several key issues are discussed below.

One way to improve competition is to introduce new berths or terminals. The availability of this option is largely dependent on the existence of a suitable site for port expansion as well as sufficient volumes to justify capacity expansion. Many ports do not have expansion possibilities adjacent or in close proximity to existing facilities for a variety of reasons, including limitations imposed by terrain or urban encroachment, or lack of sufficient land. Alternative expansion possibilities may also be relatively costly, requiring substantial cargo volumes for cost recovery. This is particularly true if the port expansion is to be achieved via land reclamation, or if the new facility is a greenfield, requiring additional investments in land access and utility infrastructure.

Dividing an existing port into competing terminals, or terminalization, is another way of enhancing competition. Terminalization involves dividing existing port facilities into separate terminals, each leased or concessioned to a different operator. The facility's configuration and structure may limit the ability to pursue this option, particularly for purposes of establishing gate access for each operator, and building heavy load bearing structures⁸ and berths (Box 7). This measure, of course, generally assumes there is sufficient volume to support more than one terminal handling the same cargo type (for example, two dedicated container terminals). For further information, Box 8 presents an example of how the terminalization may be implemented when traffic volumes do not justify two container terminals, and Box 9 discusses how subsidy bids may be used for management contracts when low cargo volumes would not otherwise generate bids.

Competition from the market occurs when private sector operators bid for a concession, lease, or management contract. Indeed, contracts typically contain minimum performance standards, which if breached, may result in contract termi-

Box 7: Dividing the Port into Terminals to Induce Competition

A port can be divided into terminals through the allocation of berths (for example, one terminal per berth). Berth length in older ports may not allow for this, however, depending on the characteristics of vessels calling at the port. For example, assume that an older port consists of two berths, each having a berth length of 122 meters. The two berths together can accommodate 2,400 TEU vessels, the typical feeder vessel size today; but one berth alone cannot accommodate such vessels, thereby negating the possibility of dividing the port into separate terminals. The anticipated future fleet characteristics, therefore, are important factors in deciding whether to divide a port into separate terminals.

To overcome this limitation, the port can still be divided into terminals, say one for container, and the other for breakbulk, where priority is given to one type of operation over another. For example, the breakbulk operator under the terms of its contract could be required to forfeit its rights to its berth area when a container vessel calls. Typically, container vessels are given first-berth rights in ports due to their relatively high cost of operation, the higher revenue impact on the port, and the sensitivity of delays on their remaining itineraries.

Source: Author.

nation or could bar the incumbent from rebidding at contract expiration.

Where markets consist of large cargo volumes, countries will not encounter difficulty in generating interest in concessions by the international maritime community. While there is a relatively small number of companies today engaged in operating terminals outside their native countries, there are also instances of smaller companies within a region that are seeking investment opportunities elsewhere. For example, smaller-scale companies from Argentina and Colombia are seeking port investment opportunities elsewhere in Latin America. At the same time, both large international companies as well as their smaller regional counterparts will often seek local joint venture partners due to political con-

Box 8: Terminalization in Limited-Volume Ports: The “Overlapping Competition” Strategy

Many ports may have facilities that are well suited for pursuing a terminalization strategy. Whether this strategy can be executed depends on the size of the market for a particular cargo type. Large container markets, for example, of 1.5 million TEUs can typically justify five single-berth terminals served by two gantry cranes each. But how can a port induce competition where the volume (for example, 150,000 TEUs) can only justify one container terminal? One method is to use the “overlapping competition” strategy.

Here’s an example of how it can work: The port’s facilities can be divided into two single-berth terminals; one can be dedicated to container handling and the other to breakbulk. Each terminal is concessioned to an operator. The concession agreements can be structured so that either operator can handle the other’s cargo. Certainly, each terminal’s cargo will be dominated by the type of cargo for which the terminal is dedicated. Nevertheless, the breakbulk operator can attempt to compete for the container business as well.

Although most breakbulk facilities are not designed to accommodate gantry cranes, the

breakbulk operator can encroach successfully on the container business. Why? Because to reduce the cargo handling charges, a vessel with its own gear may prefer to call to a terminal not offering gantry services. Moreover, the load-bearing capacity of most breakbulk terminals can accommodate mobile cranes; many ports today have the mobile cranes working alongside the ships’ gear. Though overall handling productivity is not as high as gantry services, it is sufficient to divert some cargo from fully dedicated container terminals for vessels not requiring the more expensive handling equipment. Though not commonly done, it is also possible for the container terminal to encroach on the breakbulk business. If the container terminal has excess capacity and low berth utilization, it can fill the revenue void by handling breakbulk cargoes as long as it does not interfere with its core business.

Source: Ashar, Asaf, and Paul E. Kent. 1996. *Diseo de Plan de Expansin Portuaria en Buenaventura* (Design of a Port Expansion Plan in Buenaventura). Sociedad Portuaria Regional de Buenaventura, Buenaventura, Colombia (this strategy was recommended as part of an effort to induce competition at the Port of Buenaventura, Colombia).

siderations as well as the local partner’s clearer understanding of the peculiarities of the local law, culture, and operating environment.

Because of the mutual benefits accrued from joint local-international partnerships, governments should encourage such partnerships by minimizing overly stringent prequalification criteria. For example, some countries have in the past imposed the same qualification criteria on all parties of a joint venture when, in fact, it is only necessary for one of the partners to satisfy the minimum qualification standard.

Countries should also be aware that vessel operators might emerge as part of the responding bidders. Today, increasing numbers of carriers are emerging as terminal operating companies (for example, Maersk, COSCO, MSC, CMA-CGM, and APL). Although these carriers may create subsidiaries to operate terminals, there is an inherent conflict of interest in their participation in both shipping and terminal operations activities because there is the potential to engage in service or

pricing discrimination: in the former, terminal operators owned by carriers (or their holding companies) may offer preferential berthage rights to their own carriers, while in the latter case they may offer discounts to their own carriers. More importantly, a carrier-operated terminal will have access to proprietary data (for example, cargo manifests) that identify shippers (importers and exporters) served by another carrier calling at the terminal. Carriers are thus reluctant to call at carrier-operated terminals if other options (other terminals) exist. Governments should be aware of such potential practices of carrier-operated terminals and can discourage such behavior in the concession agreements (for example, operator billings being subjected to audits). Box 10 presents a summary of some of the key issues and analyses that should be addressed when preparing a strategy for port sector restructuring.

3.3. Regulatory Strategies

Even when structural strategies are employed to enhance competition in the port sector, regulatory

Box 9: Subsidy Bids for Management Contracts in Low-Volume Ports

Under certain circumstances, cargo volumes may be so low that solicitations will not generate any responses to tenders. Regulators in these circumstances can take a lesson from the approaches used in the utility sector where the government awards a concession for utility services in a low demand environment (for example, telephone services in rural areas) through what is called a “subsidy” bid.

In the port sector, management contracts typically obligate the port authority to pay a charge per unit cargo handled by the operator. The port authority bills the shipper and carrier, and these revenues would be used to offset the cost of paying the operator. But in low-volume ports, the revenues derived may not be sufficient for the operator’s full cost recovery plus profit.

Under these circumstances, port authorities may have received subsidies to cover the cost of their operation (particularly true for life-line service or cabotage and interisland service ports). Therefore, the solicitation may consist of two bid items: the first setting out the charges the operator would impose on shippers and carriers on a per unit or volume basis, the second setting out the subsidy payment that the operator would expect from the port authority. Offers consisting of a combination of the lowest charge and subsidy would be awarded the contract.

Source: Author.

Box 10: Checklist for Port Sector Restructuring or Unbundling

The following are issues to consider when assessing the suitability and potential benefits of port sector restructuring:

- Is there current or potential interport competition?
- Is there a specialized private port facility nearby that could compete for public traffic if granted permission to handle general cargo or containers?
- Is the inland transport network adequate to provide competition from another regional port?
- Is port traffic sufficient to permit intraport competition? Is any of the terminal owned or operated by a shipping line that might not provide universal service to other carriers?
- Is there more than one firm capable of providing cargo handling services?
- Can licensed, private operators provide vessel services such as pilotage, towing, and berthing?
- Can private providers compete for cargo handling and storage contracts?
- Is the port layout sufficient to support competing yard operations?

Source: Author.

measures may still be required. Economic regulatory measures typically used within the port sector fall within two categories:

- Tariff filing (or R1 in Box 6) would be required by the regulator to monitor for anticompetitive behavior.⁹
- For other operational settings, setting tariffs¹⁰ (or R2 in Box 6) may be necessary if there is a high risk of monopolistic behavior.

In contemplating the need for regulation, it should also be emphasized that regulators should communicate with port planners to determine what regulatory and operational measures are most appropriate given the port’s

operational setting and market outlook. Establishing a productive relationship between regulators and planners can be problematic given the sense of ownership that many port authorities have over their facilities. The port planner’s most efficient operational strategy may run counter to the antitrust concerns of the regulator. At the same time, the port planner and potential operators should be made aware of the regulatory environment that they can expect after contract award. The ultimate strategy selected would logically reflect a balance between the need to promote operational efficiency (the planner’s perspective) and the need to avoid antitrust behavior (the regulator’s perspective). This, in turn, reflects the conflict between the goal of efficiency gains from the scale of economies (size) versus increasing the number of competitors by dividing them into

smaller units (for example, single port operator versus multiple terminal operators).

3.4. Decision Framework for Selecting Port Competition Enhancement Strategies and Remedies

Box 11 presents a decision framework for selecting port competition enhancement strategies for a variety of port conditions and competitive environments. The decision framework includes three major elements:

- “Setting” refers to the operational environment in which the port exists, specifically regarding the port’s relative size, number of berths, and cargo volume.
- “Diagnosis” refers to the criteria described earlier in this module that serve as indicators for measuring the extent of competitiveness existing in the sector. These include transport options, berth utilization, tariff competitiveness, and profitability.
- “Solutions” refer to the previously described structural and regulatory measures

that should be undertaken given the port’s operational environment and extent of competitiveness.

Each of the elements of the decision framework is discussed in more detail below.

Setting. This is the port’s operational and physical environment as it pertains to the port’s relative size, the scale of its facilities, and the cargo volume handled. The scale of facilities is presented in terms of number of berths, but it should be emphasized that this is intended to represent only an order of magnitude. That is, while a port with only one to three berths is certainly small, a five-berth port could be small as well. Similarly, a 22-berth port can be considered large, but so is a 50-berth port. The competitive conditions encompassed in the three elements are the same, be it a 22-berth port, or a 50-berth one.

For example, in determining if the relative volume of a port is low, the port planner will know the extent of excess capacity (if any) the port may have in quantitative terms given the existing throughput and projected outlook for a specific cargo type (for example, containers).

Box 11: Decision Framework for Port Competition Enhancement

Setting			Diagnosis				Solutions	
Operational Environment			Competitiveness Indicators				Competitive Remedies	
Port Setting	Facility Setting	Volume	Transport options	Berth utilization	Relative Tariff competitiveness	Port profitability	Structural	Regulatory
small port	1 berth	low	1	low	N/A	low	S4	R1
	1 berth	medium	1	medium	N/A	medium	S1	R1
	2 berths	high	3,4	high	N/A	high	S1	R1
	3 berths	high	1,2	high	N/A	high	S2	R1
medium port	3 berths	medium	1	medium	N/A	medium	S2	R2
	12 berths	low	1,2	low	N/A	low	S2	R1
	12 berths	medium	1,2	medium	N/A	medium	S2	R1
	12 berths	high	1,2	high	N/A	high	S1, S2	R1
large port	12 berths	high	3,4	high	N/A	high	S2	N/A
	22 berths	low	5	low	similar rates	medium	S2	N/A
	22 berths	high	1	low	N/A	low	S2	N/A
	22 berths	high	3,4	high	N/A	high	S1, S2	R1
	22 berths	low	5	medium	similar rates	medium	S2	R1
	22 berths	low	5	low	lower	low	S2	N/A

Transport option codes:

- 1 - No other ports or intermodal options
- 2 - No possibility for facility expansion/construction of a new port
- 3 - Possibility to expand existing facility
- 4 - Possibility to construct a new port/terminal nearby
- 5 - Other port or intermodal options

Structural codes:

- S1 - Introduce new berths-terminals
- S2 - Divide existing port into terminals
- S4 - Short-term operating agreement/lease/management contract

Regulatory codes:

- R1 - File/monitor tariffs
- R2 - Set tariffs/profitability limits

Source: Author.

If there is significant excess capacity, then cargo volume is low relative to the port's capacity and is so described in Box 11. If there are, or potentially could be, capacity shortages, then cargo volume is described as high.

Diagnosis. This identifies the most important criteria for assessing the extent of competition that exists. Recall from earlier in this module that the lack of existing or potential transport options, high berth utilization (as a measure of congestion), high tariff levels (relative to competitors), and high port profitability are conditions that may indicate or encourage anticompetitive behavior.

Solutions. The diagnosis of the competitive environment in light of the port's setting defines the potential operational and regulatory solutions for enhancing port sector competitiveness. This represents the course of action that the port planner and regulator may take.

The decision framework can be used to select port competition enhancement strategies and remedies. Referring to Box 11, consider a small port consisting of three berths and high volume. This is the only port serving its particular hinterland; there is no potential for adding capacity, and there are no intermodal options. Berth occupancy is high and profitability is high. Here, we have a classic monopolistic setting—high volume, high berth occupancy, high profitability, and no competition. The preferred strategy is to divide the port into terminals (indicated by solution S2) and to impose tariff filing and limits, with the possible need for tariff monitoring (solution R2).

Looking at the other extreme, a one-berth, low-volume setting, with low occupancy, no competition, and low profitability suggests entering into a short-term operating or management contract (solution S4), with the possibility for a subsidy bid.

Other scenarios include:

- For a medium-sized port with a low-volume setting and a lack of existing or potential transport options, low berth occupancy and low profitability point to

the need to even close some berths and place them into reserve. Placing excess capacity into reserve status reduces the port's maintenance costs while at the same time facilitating ease of entry as volumes increase.

- The situation changes in a scenario of a medium-sized port with a high-volume setting and interport or intermodal competition, excess capacity (as indicated by low berth utilization), competitive rates, and medium profitability. Here, the preferred solution is to divide the port into competing terminals.
- A large port with no competition, high volume, low berth occupancy, and low profitability points to terminalization (again, with possible berth closures) without the need for tariff filing as the excess capacity allows for easy entry if pricing becomes monopolistic.
- A setting with medium volume, medium berth occupancy, medium profitability, and similar rates to competitors' offers the possibility to terminalize the port with complementary tariff filing requirements.

As demonstrated, the decision framework can be a useful tool for the port sector reformer to optimize the design of a competitive setting. It can also serve to curtail the government's natural inclination to tightly regulate in circumstances where it is not needed. Overregulation would have the unintended consequence of constraining efficiency. Indeed, as Box 11 shows, only rarely is it necessary to actually set tariffs or profitability limits (solution R2) because of the structural remedies that are available.

4. DESIGNING A PORT REGULATORY SYSTEM

The shift in the role of the public sector from port services provider to landlord and regulator will require that the public sector develop new skills, institutional capabilities, and practices. These include regulating unfair or anticompetitive practices; designing and negotiating contracts

with private providers of port services; monitoring performance and enforcing compliance with general standards; and creating processes for wider participation in developing and implementing transport policies and programs.¹¹

Changing the role of governments from having direct control over state-owned and operated ports to exercising indirect guidance through appropriate regulation and pricing policy is likely to put greater demands on institutional capabilities in developing and transition economies than can be satisfied immediately. In some cases, improving regulations is largely a matter of strengthening the existing monitoring and enforcement capability. In other cases, it involves setting up participatory development and appeal processes. In yet others, whether there is a need for transport-specific institutions will depend on how these issues are dealt with at an economywide level.¹²

Regulation, however, must not become a strait-jacket that stifles initiative. This would be a return to the past, where the port authorities were often so heavily regulated by the supervising authority that they could not take any initiatives or soon lost their drive to innovate, invest, and improve efficiency.

To help design an economic regulatory policy and avoid the pitfalls of heavy handed regulation, the following guidelines will be helpful:

- Government should have a clear understanding of the competitive environment of the port sector.
- A decision on economic regulation should be based on the risk of anticompetitive behavior or on evidence that monopolistic behavior is occurring and that other methods of intervention (for example, cease and desist orders, sanctions, or fines) are not feasible, adequate, or appropriate.
- The regulator should clearly define what form of economic regulation (for example, rate of return or tariff setting) is to be applied and under what circumstances.

- Responsibilities for regulation of port operations¹³ and competition should be formally separated. Because of the risk of “agency capture” and the potential conflict of interest between the two forms of regulation, they should be separated and assigned to two different entities.
- In the event that economic regulation is imposed, regulators will need to have a reasonable understanding of the cost structure of the operation; this means that regulators will need proprietary financial information and will have to weigh the tradeoffs between the need for information and the burden of the reporting requirements on the operators.¹⁴
- When a determination is made that economic regulation is not necessary, but instead tariff monitoring or approval is warranted, then the regulator will need to clearly set out the tariff reporting requirements, the review process, and impose a time limit on itself as to when an approval decision is to be made.
- The entire competition regulation policy should be conveyed to the port and shipping community, as should the disposition of antitrust cases and regulatory policy decisions.
- Policy and case deliberations should include the opportunity for affected parties to present their views.
- Any decisions made by the regulator should be enforceable with recourse for appeal.

In designing a port regulatory system to protect customers and the general public interest, governments need to keep several broad principles in mind. First, it is important to be realistic; a balance must be struck between what is ideal (that is, as close as possible to perfect competition) and what is achievable. Second, regulation should not be too restrictive or controlling. Overly restrictive regulation could deter private companies from providing services or limit their ability to introduce innovative and efficient practices. Regulation that seeks to control in detail

how the private port operator runs its business risks defeating the central purpose of private sector participation—improving service delivery at the lowest possible cost to the user. Third, a regulatory system must be consistent with the institutional capabilities and resources of regulators.

Designing a port regulatory system to accommodate private sector participation can be broken down into eight basic steps¹⁵:

- Step 1.* Specify the essential regulatory objectives and tasks.
- Step 2.* Determine how far existing laws go toward assigning these tasks.
- Step 3.* Determine institutional arrangements for regulatory oversight.
- Step 4.* Consider how much regulatory discretion should be allowed.
- Step 5.* Consider what regulatory tools and mechanisms will be used.
- Step 6.* Specify port operating and financial performance indicators.
- Step 7.* Establish an appeal process and procedures.
- Step 8.* Incorporate regulatory details into laws and private sector contracts.

Presented below is a discussion of issues to be considered in completing these steps, along with checklists and illustrations to provide guidance for the design of a port regulatory system.

4.1. Step 1: Specify Regulatory Objectives and Tasks

Economic regulation of the port sector may have multiple objectives. These include:

- Promotion of efficiency.
- Satisfaction of demand, notably by promoting investment.
- Protection of consumers and users, particularly against monopolistic or other abuses by the operator(s).

- Protection or even promotion of competition, including protection of those competing against a dominant operator.
- Prevention of pricing or service discrimination.
- Protection of investors against unfair or unreasonable government action.

The primary purpose of economic regulation is to control anticompetitive behavior resulting from shortcomings in the marketplace. It should be distinguished from technical, safety, environmental, and other forms of regulation, although in practice these may often be intertwined.¹⁶ Regulators typically have the power to adjudicate disputes between port operators or between port users and operators. This may be the most important function of a regulator when a sector is liberalized and an operator engages in anticompetitive behavior.

Competition regulators are normally in charge of verifying and enforcing compliance with antitrust legislation. Monitoring compliance with concession and lease terms and conditions is normally assigned to the port authority as the lessor of the facilities (or land). The port authority is also given the power to enact general norms and regulations governing operational practices within the port.

The competition regulator's legislated powers typically authorize the regulator to require periodic submittals of tariff, financial, operational, and any other data necessary to support the regulator's industry monitoring responsibilities; receive and issue complaints about alleged anticompetitive behavior; compel operators to provide proprietary and other data during investigative (discovery) proceedings; deliberate over cases of alleged violations of antitrust legislation; and impose remedies in the event that the regulator determines a violation occurred.

The objectives of regulation in most developing and transition countries, however, frequently are different. The level of profits earned by the private operator should be of secondary importance. The main challenge in many underdeveloped markets

is to meet existing and latent demand for services. Hence, the primary objective of regulation should be to ensure that the operators (public or private) meet minimum performance standards, thereby taking action to close the gap between supply and demand. Consumers in most of these countries often prefer a high-priced service to no service at all. Furthermore, distributional objectives or concerns can, if needed, be addressed through subsidies or other mechanisms.

Depending on the objectives to be met, regulation may focus on tariff policy; direct and indirect subsidies; access to congested facilities; investment levels; performance targets; service quality and continuity; and so on. Most countries use a range of regulatory instruments (including specific stipulations in concession agreements or licenses and general rules) to govern the award of licenses, the oversight of the licensees, and more generally, the rights and obligations of users, competitors, and other parties.¹⁷

4.2. Step 2: Conduct a Legal Review of the Regulatory System

In assessing how the broad regulatory framework will affect the design of a port reform regime and the attractiveness of that regime to the private sector, governments need to consider a wide range of constitutional provisions, laws, rules, regulations, and activities of government agencies. These include:

- The constitutional and legislative division of responsibilities for service among national, regional, and local governments.
- Responsibilities and relationships of relevant government entities.
- General legislation affecting private sector involvement, including by foreign companies.
- Issues relating to land use titling.
- Competition law, and competition or antitrust enforcement agencies.
- Environmental laws.

- Contract and concession law.
- Labor law.

The minimum requirement for effective regulation is a framework of law pertaining to property rights, liability, conflict resolution, and contracting. There must also be capacity to enforce the laws and credible assurances that the laws will not be changed by political whim.

Box 12 presents the review and revision of port regulatory responsibilities in the state of Victoria, Australia. Further discussion of the legal aspects of the port regulatory system is presented in Module 4 of this Toolkit.

4.3. Step 3: Determine Institutional Arrangements for Regulatory Oversight

A key element in the design of a port regulatory system is determining the appropriate institution or institutions that should have primary responsibility for competition oversight. Items that need to be considered include:

- Should the regulatory entity be multisectoral or specific to the port sector?
- How can the regulatory entity best encourage direct participation or input from port users?
- Should it be centralized or decentralized?
- How can the regulatory entity's independence be protected from short-term political pressures and from the undue influence of port operators and service providers?
- How should the regulatory entity coordinate with other regulatory institutions?
- How can requirements for staffing and technical capabilities be met?

Should governments set up a regulatory body for the port subsector, as has been done in Argentina, Colombia (Box 13), and the United Kingdom; a single agency for the transport sector as in the U.S. Surface Transportation Board; or a multisectoral agency for all or

Box 12: Reviewing Port Regulatory Responsibilities in Victoria, Australia

In January 1995, the State of Victoria announced its intention to reform Victoria's ports. Until 1993, the chairmen of the port authority boards were also the chief executive officers of the port authorities. As a prelude to port reform, so-called "reorganizing boards" were established for each port authority, and the positions of chairman and chief executive were separated under the State Owned Enterprises Act of 1992. The port authorities continued, however, to exercise their considerable statutory powers to regulate, administer, and fund the operation of each port. In essence, while they remained under government control, the port authorities were regulating both their customers and themselves, and the Minister for Roads and Ports, to whom many of the statutory powers were deferred, was both the "regulator" and the "shareholder" of the businesses the port authorities conducted.

Examination of the statutes indicated that significant shifting of regulatory responsibilities

was necessary to ensure that a framework for regulation of the ports was in place prior to their sale, out-sourcing, or reorganization. First, it was necessary to provide for the orderly retirement of the port authorities' existing functions and powers as these were superseded by the new legislation. Second, new entities would have to be created to provide for the management of the Port of Melbourne and the shipping channels, since it had been determined that the channels should remain under public management but with a commercial focus. Third, environmental and occupational health and safety issues would need to be devolved to the most appropriate government body. Fourth, land and planning statutes would need to be altered to make possible the definition of each of the ports as a saleable entity or an entity whose operation could be outsourced. The revised responsibilities for regulation of the ports under the port reform regime are summarized below.

Responsible Authority	Revised Responsibilities
Regulatory powers relating to harbormasters, direction of shipping, maintenance of certain aids to navigation, promulgation of standards for the dredging of channels, and responsibility to coordinate compliance.	The Marine Board: Significant amendments to the Marine Act of 1988 enlarged the powers and responsibilities of the Marine Board, making it the principal point of reference for navigational safety and containment of marine pollution. Some of these powers were transferred from the various port authorities in anticipation of the repeal of the port authority statutes.
Pollution of waters.	The powers previously residing in the port authorities under the POWBONS Act were transferred to the Environment Protection Authority.
Economic regulation of marine services.	The Office of the Regulator-General.
Transfer, handling, and storage of dangerous goods.	The Victorian Work Cover Authority. The Dangerous Goods Act of 1985 was extended to cover the transfer, handling, and storage of dangerous goods in ports.
Management of the Port of Melbourne.	Creation of Melbourne Port Corporation and Melbourne Port Services.
Management of channels in port waters, including dredging and maintenance of navigation aids.	Creation of the Victorian Channels Authority.

Box 12: Reviewing Port Regulatory Responsibilities in Victoria, Australia (Continued)

Responsible Authority	Revised Responsibilities
The Governor-in-Council, on the recommendation of the Minister for Conservation and Lands, to issue title to the relevant port authority.	Revocation of reservations, surrender of Crown land, issue of freehold title.
The Minister for Planning was given facilitative powers to prepare specified amendments to the planning schemes so far as they affected the port areas.	Amendment of planning schemes.

Source: McCallum, Elizabeth. 1999. "Privatising Ports: A Legal Perspective." *Privatisation International*, November, pp. 53–55.

Box 13: Establishing a Port Sector Regulatory Agency in Colombia

During its prereform days, Colombian ports were known for low productivity and poor efficiency. Average length of stay for a vessel was twice that of other ports in the region. Colombia's institutional framework was typical of the prereform situations in Latin America. The port sector was highly centralized in an organization known as COLPUERTOS, whose responsibility included the administration, operations, management, and planning of the country's four primary ports: Cartagena, Santa Marta, Barranquilla, and Buenaventura. Private terminals were permitted, but could not be offered as public use facilities. COLPUERTOS also controlled the tariffs for each of these ports. In addition to having separate administrations for each port, COLPUERTOS had a central administration office in Bogotá. The total number of public sector employees was nearly 11,000.

Law 1, passed in 1991, sought to liquidate COLPUERTOS and create the Superintendencia General de Puertos (SGP) to:

1. Oversee COLPUERTO's liquidation.
2. Implement a new system of port societies and operating concessions.
3. Prevent monopolistic abuses among the port societies and operators (primarily through tariff review, tariff setting, determining the number of concessions to be awarded, and imposing fines and sanctions).

4. Establish technical norms for port operations. The SGP became part of the Ministry of Public Works and Transport as an independent entity with financial and administrative autonomy. Its costs are covered through the assessment of a supervision fee to be paid by the port societies and port operators.

In exercising its supervisory function, SGP established offices at the regional port societies' facilities. Total SGP employees originally numbered just over 100, including employees charged with monitoring operations at each port. By 2000, SGP employees had increased to more than 200. Regional port societies have the freedom to issue subcontracts for port services. For instance, in Cartagena, more than 25 private stevedoring companies licensed by the SGP compete for contracts with ship agents.

The approach to port sector reform in Colombia created a competitive environment that goes beyond the competition between stevedoring companies. Interport competition for container cargo was promoted among the Atlantic Coast ports of Cartagena, Santa Marta, and Barranquilla. Law 1 also permitted privately owned terminals to become public use facilities and to compete with the regional port societies.

Source: Kent, P., and A. Hochstein. 1998. "Port Reform and Privatization in Conditions of Limited Competition: The Experience in Colombia, Costa Rica, and Nicaragua." *Journal of Maritime Policy and Management* 25(4): 313–333.

most infrastructure sectors, as in Australia? On the other hand, perhaps there should be no special regulatory body at all, as in New

Zealand, where the Commerce Commission, the national competition agency, is in charge of economic regulation of the infrastructure

sectors on the basis of the country's general competition rules.

A strong case can be made for a multisectoral regulatory agency. A multisectoral agency should contribute a greater degree of coherence and consistency in the regulation of different sectors. It also allows lessons from one sector to be applied to others, creates administrative economies of scope, and may limit the risk of corruption or undue influence by a particular enterprise or ministry. It is particularly well suited for countries that lack the necessary financial, human, and administrative resources to equip separate agencies. Some argue that that it does not promote the development of in-depth sector expertise, but this can be addressed by a degree of technical specialization within the agency. Basic legal, economic, and financial skills and experience are, in fact, largely common to various infrastructure sectors.

A new generation of transport agencies is being introduced, inspired by the integrated U.S. model and led by Bolivia and Peru. Both countries have regulatory agencies that are much more independent from policy makers. The agencies cover all transport sectors and have their own sources of funding. They rely on this funding to subcontract for skills that they do not have in house. To ensure good coordination between the agency monitoring competition and the transport regulator in Peru, one of the members of the Transport Regulation Board is also a member of the Competition Commission.¹⁸

A typical regulatory approach is one in which countries monitor the port sector through an agency established to monitor and enforce antitrust law generally. Mexico, for example, has the Federal Competition Commission as the agency with primary responsibility for competition law. The Swedish and British counterparts are the Swedish Competition Authority and the Office of the Director General of Fair Trading, while in the United States it is the Federal Trade Commission.

The nonsectoral emphasis of these countries assures uniform application of competition policy across all sectors and allows consideration of

the impact of corrective or enforcement action within one sector on another. Moreover, antitrust monitoring and enforcement is distinctly separated from other sector-specific regulatory aspects; this assures neutrality or objectivity and reduces the possibilities of regulatory capture sometimes associated with sector-specific regulatory agencies.

In spite of such advantages, having an antitrust agency responsible for all sectors is a significant burden on the agency itself because of the array of cases that it may need to pursue. Moreover, specialists assigned to particular cases may not have specific industry expertise; specialists with backgrounds in commercial advertising practices, for example, may be assigned to pricing collusion cases related to the automobile industry; individuals who are experts in grocery store pricing practices may be assigned to maritime terminal operator cases. This approach means that a cadre of specialists will not be developed to the extent that assurances can be given that they will make a decision based on analyses reflecting a thorough understanding of the sector. An alternative approach, therefore, could be to establish an antitrust practices office within an agency already responsible for planning, development, and regulation of the sector, but with ratemaking independence.

How can the regulatory entity best encourage direct participation or input from port users?

Consumers, both individuals and businesses, are not typically heavily involved in the port regulatory process, even though their input can be critical to efficient service when the regulator has only limited means of acquiring information. Final consumers are often the best monitors of service quality. Ways to obtain consumer feedback include establishing user advisory boards or having user representatives on port authority boards.

While providing a formal basis for user feedback can be useful to operational regulators, applying it to an antitrust regulator should be discouraged. User input, or input by other interested parties, will often be sought by regulators during the investigation associated with an alleged

Box 14: A Simple Port Regulatory Structure for Sri Lanka

As part of the port modernization process undertaken in Sri Lanka in 1998-1999, a simple but effective proposal was formulated and embedded in the signed concession agreement for Queen Elizabeth Quay, which includes the establishment of a small regulatory Commission to resolve competitive issues concerning public and private port operations. The establishment of the commission in a period of 5 years (before 2003) will provide private port operators and private sector participants/investors with reassurance that a fair and transparent process would be available to resolve competitive issues. The objectives of the Commission are:

- To encourage and promote fair competition between all port operators, be it public or private, and to create an atmosphere of confidence for investors in port services and facilities;
- Upon complaint of any interested party, to judge disputes concerning these parties in an impartial and non-discriminatory manner taking into account the particular conditions of Sri Lanka, principles of equity and equal opportunity, revenue adequacy and common practices in the industry and other criteria the Commission shall deem appropriate;
- In response to complaints from interested parties, to regulate tariffs of port services based on transparent and objective criteria of rate reasonableness, in the event that specific tariffs are proven before the Commission to be incompatible with the principles of fair competition or with the common practice of the industry. The Commission would not interfere, at its own initiative, in the tariff setting of public or private commercial legal entities carrying out activities in any port area in Sri Lanka;
- To act upon complaints from users of Sri Lanka port facilities that carry out legal commercial activities related to shipping, transport of passengers and transport

and/or storage of goods, regarding the way public services are being provided by SLPA and to direct under threat of penalty that SLPA correct the way it provides public services.

The Commission will consist of six regulators who will serve a single, six-year term. The terms of the regulators shall be staggered so two new regulators will be appointed every two years. The Minister for Ports, Rehabilitation and Construction will appoint the regulators based on nominations received. The Chairman and one regulator shall be appointed from lists nominated by the Sri Lanka Ports Authority; one regulator each from nominations by a representative organization of shipping agents, an organization of private terminal operators, the Sri Lanka Chamber of Commerce and the Arbitration Institute of Sri Lanka.

Proceedings will be advocative. Interested parties shall have an opportunity to present facts and arguments in support of their interests before regulators. Proceedings will be open to the public and transcripts of evidence presented and discussions held during proceedings will be maintained for public review. The decisions of the Commission will be reached by majority decision. Each decision will be accompanied by a set of findings that explain the basis of the ruling and clarify issues of administrative law and precedent.

Decisions are binding on parties to disputes. An appeal of the findings and directives may be submitted to the Chairman of the Commission; the sole basis for appeal shall be the failure of the Commission to uniformly and equally apply its principles of its own administrative law. The Commission shall have the power to apply civil sanctions and penalties which devolve from the power of the Minister for Ports, Rehabilitation and Reconstruction.

violation. Under these circumstances, alleged violators, complainants, and other interested parties are typically given the opportunity to express their views and present evidence during the case disposition process. If a port user sits as a regulator, as the Sri Lankan legislation proposes,

this creates the potential for a user to sit in judgment over a customer or another competitor, giving rise to conflicts of interest (Box 14).

Advisory bodies should be considered seriously as sources of input to the port regulatory entity.

They offer a degree of transparency and inject analysis and debate in discussions that previously would have taken place in the secrecy of a ministerial cabinet. The advisory body can see its role and influence increase when the authority competent to make a specific decision is not only forced to seek its advice and take it into account, but also to justify any departure from such advice. Furthermore, for certain matters, the competent authority may not be allowed to reach a decision going against the opinion or advice received.

How can the regulatory entity's independence be protected from short-term political pressures and from the undue influence of port operators and service providers? The independence of a regulatory body is worth little unless it is upheld against undue influence by the regulated industry or by unreasonable political intervention. Cases of regulatory capture by the industry are not uncommon. The problem is particularly acute when regulatory agencies are set up as part of the civil service in countries where staff is not adequately compensated. By removing regulatory staff from civil service constraints, governments may remunerate them in ways that better protect them from industry capture and that allow the agency to attract qualified candidates, hence enhancing the “professionalization” of the regulatory function.

Rules need to be laid down concerning potential conflicts of interest among the regulator's staff (for example, by prohibiting former staff of the regulatory agency from working for a regulated operator for a specified period after leaving the agency). If independence from undue industry influence is to be achieved, then competition and operational regulation should be assigned to two different entities.

Traditionally, a public port entity had full responsibility for administration and operation of the port sector. This included regulating operational practices applicable to navigation and vessel calls as well as providing the full range of cargo handling and vessel services. In a privatized setting, the port authority (landlord form) will retain operational regulation responsibility

in a privatized setting, along with other functions associated with its ownership of facilities (for example, infrastructure maintenance, lease management, and monitoring for compliance).

Today's modern port authorities have a certain degree of independence, many having the authority to engage in contracting and leasing, setting their own capital and operating budgets, tariff setting (for port authority charges), and hiring and firing, all without the need for approval from other government entities. In the discharge of many of these duties, port authorities are in contact with port operators on a frequent basis.

Similar independence can be accorded the competition regulation agency. Box 15 enumerates a number of strategies that can be used to ensure a more independent agency culture. Two of the most critical factors are independence relative to budgeting and case disposition. As Box 15 notes, it is imperative that the competition agency develop budget independence, as the power and independence of the agency can be limited by the budget process itself. Agencies require funds to operate, and executive and legislative review can exert powerful influence over agency actions. Retribution, in the form of budget cuts, can be taken against regulators if their decisions or functions are politically unpopular. It is possible, therefore, for the competition regulatory body to enhance its independence by securing at least a portion of its budget from fees assessed on port operators.

A critical aspect of regulatory independence is the ability to reach decisions on cases based on a fully developed public record. Such decisions should only be affected by the evidence and data collected in the course of the agency's monitoring responsibilities and in investigating complaints, which may include testimony as well as data collection and review of proprietary information that may be requested of the alleged violator. This suggests also that the industry need not be informed of which professionals within the agency are assigned to do the analysis of a particular case, although the

Box 15: Safeguards for Creating an Independent Regulatory Body

Creating an independent agency, no easy task in any setting, is even more challenging in countries with a limited tradition of independent public institutions and limited regulatory experience and capacity. Measures that can aid in establishing an independent agency include:

- Provide the regulator with a distinct legal mandate, free of ministerial control, with an independent board.
- Establish minimum professional criteria for appointment.
- Involve both the executive and the legislative branches in the appointment process.
- Appoint regulators for fixed terms and protect them from arbitrary removal.
- Stagger terms so that they do not coincide with the election cycle, and for a board or

commission, stagger the terms of the members.

- Exempt the agency from civil service salary rules that make it difficult to attract and retain well-qualified staff.
- Provide the agency with a reliable source of funding, usually earmarked levies on regulated firms or consumers.

In addition, persons appointed to these positions must have personal qualities to resist improper pressures and inducements. And they must exercise their authority with skill to win the respect of key stakeholders, enhance the legitimacy of their role and decisions, and build a constituency for their independence.

Source: Smith, Warrick. 1997. "Utility Regulators—The Independence Debate." In *The Private Sector on Infrastructure: Strategy, Regulation, and Risk*, p. 23. Washington, DC: World Bank.

agency would assign a contact person during the course of case disposition. This anonymity can contribute toward the independence of decisions related to a case and reduce the opportunity for industry and political forces to unduly influence them.

Independence needs to be reconciled with measures to ensure that the regulator is accountable for its actions. Checks and balances are required to ensure that the regulator does not stray from its mandate, engage in corrupt practices, or become grossly inefficient (Box 16).

How can requirements for staffing and technical capabilities be met? Many developing countries confront a challenge in assembling experienced professionals to staff a regulatory agency. Regulatory agencies have limited resources and are often unable to attract qualified people. The ability of independent agencies to sidestep civil service salary restrictions and to have access to earmarked funding makes it possible to recruit and retain better-qualified staff and to hire external consultants. Much of the work traditionally performed by regulators lends itself very well to contracting out to private experts. Complex regulatory functions need to be performed professionally. When limited administrative capacity is

a constraint, at least in the short and medium term, contracting out of regulatory tasks should be considered.

Governments and regulators can, and often do, hire consultants, advisers and experts to assist them in all aspects of their regulatory tasks. Such contracting out can be taken one step further and formalized through, for example, performance audits or certifications performed by independent verification companies under contract with the regulator. Auditors could be asked to certify that information provided by the regulated port operators (including performance targets) is fair and reliable. The verification company will base this opinion on checks that they have performed and on their assessment of the systems the companies established to produce the required information. In addition, they could be asked to certify that the regulated company is in compliance with the legislation in effect, and if not, to determine the degree of noncompliance and the factors that may have contributed to it. Their task could also include surveys of port user satisfaction.

Finally, verification companies could measure the regulated companies' performance against key parameters, prepare time series showing

Box 16: Reconciling Independence with Accountability

Striking the proper balance between independence and accountability is notoriously difficult, but the following measures to do so have been adopted by a growing number of countries:

- Mandating rigorous transparency, including open decision making and publication of decisions and their rationale.
- Prohibiting conflicts of interest.
- Providing effective arrangements to appeal the agency's decisions.
- Providing for scrutiny of the agency's budget, usually by the legislature.
- Subjecting the regulator's conduct and efficiency to scrutiny by external auditors or other public watchdogs.
- Permitting the regulator's removal from office in cases of proven misconduct or incapacity.

Source: Smith, Warrick. 1997. "Utility Regulators—The Independence Debate," In *The Private Sector on Infrastructure: Strategy, Regulation, and Risk*, September, p.23. Washington, DC: World Bank.

trends, and compare these results with international norms. But, performance comparisons require highly knowledgeable experts to do proper performance benchmarking. For example, to explain why a terminal achieving 20 container moves per hour may be a much better performer than a terminal achieving 25 container moves per hour requires in-depth knowledge of the business and full availability of all required information.¹⁹ None of these functions imply any discretionary decision making on the part of the auditor. What such audits would do, however, is provide the decision makers with a sound analytical basis for their decisions.²⁰

4.4. Step 4: Determine Degree of Regulatory Discretion

A key question in designing a port regulatory system is to determine how much discretion should be granted to regulators. Discretion helps regulators respond flexibly to changing conditions, but it also creates regulatory risks for private partners and may, therefore, discourage

their participation or raise the price of their involvement. A delicate balance needs to be struck between allowing regulatory discretion and developing very tightly specified contracts that will have to be renegotiated when unexpected changes occur.

Once a contract has been awarded to a private company, it is that company's job to run the business. This may seem an obvious point, but experience suggests that great care is needed to ensure that regulators do not interfere in the day-to-day management of the port. Regulations should focus on desirable public interest outcomes, not on the specific steps taken to achieve these outcomes. For example, it is the regulator's task to monitor whether the stated performance standards are met. It is the operator's task to decide what technical measures and operating practices are needed to meet the standard. When a government specifies the regulator's duties and decides on the appropriate staffing and skill mix for the regulatory agency, it must have a clear understanding of the dividing line between regulation and operational management.

When discretion is retained on tariffs or other issues of concern to investors, the challenge is to manage it in a way that minimizes the risk of misuse. The exercise of discretion needs to be insulated from short-term political pressures and other improper influences and to be based on competent analysis. Entrusting regulatory discretion to ministers with broad authority often will not meet these tests, particularly when the government continues to own other port enterprises. In this case, there will be no arm's-length relationship between the regulator and the government-controlled firm, and there may be concerns that, in exercising discretion, ministers will favor the state enterprise over rival private firms. But even if the government has no ownership role, ministers will still be subject to short-term political pressures and changes in regulatory policy. Restrictive civil service rules in many countries also make it difficult for ministries to attract and retain well-qualified professional staff. What is required is

an agent at arm's length from political authorities, regulated port firms, and consumers. Organizational autonomy helps to foster the requisite expertise and preserve those spatial relationships.²¹

Before they can calculate the price they are prepared to offer, investors will want to know the regulatory system under which the company will operate. They will also form a view on how this regime can be expected to evolve in the years ahead. To reassure investors, the government may have to promise not to alter the regulatory system substantially, or at least not to do so to the detriment of the investors. To be effective, however, this commitment needs to be credible. Credibility could be enhanced by provisions in the privatization agreements allowing the company to automatically adjust its tariffs based on a given formula, or by a provision that the government will compensate the operator for any negative impact that results from government rejection or delay of a contractually agreed tariff increase.

4.5. Step 5: Identify Appropriate Regulatory Tools and Mechanisms

The pricing regime, particularly the tariffs and their adjustment formula, is typically a cornerstone of the economic regulatory system. It will determine the return investors can expect and the incentives they may receive to provide quality service.

The chosen tariff formula must be one that can be effectively applied by the competent authority. This presupposes, in particular, that the information needed by the authority to perform its function is available, that the authority can require the regulated enterprise to disclose such information, and that it can check its accuracy and reliability. The degree of complexity of the price adjustment mechanism thus account for the regulatory agency's technical resources and capacity. In other words, the regulatory mechanism should be tailored to the specific characteristics and constraints of the country and sector concerned.

Traditionally, governments have relied on rate-of-return regulation as the primary instrument of economic regulation. In other words, governments have generally guaranteed to port operators that they would recover their costs (within very general guidelines) and get a mark-up to reward investors; thus, the label cost-plus regime. These regimes, however, do not give strong incentives to operators to cut costs. The introduction in the United Kingdom (U.K.) of price caps changed this by showing that the regulatory regime could be designed to minimize costs. Price caps allow the operators to keep a portion of the cost savings they realized, with part of these savings being shared with port users, and sometimes governments. In many countries, hybrid systems have been developed, which result in some degree of immediate rent sharing at the beginning of the period for private sector operations.²²

Rate-of-return regulation allows the regulated company to charge prices that would cover its operating costs and give it a fair return on the fair value of its capital. While rate-of-return regulation gives operators little incentive to cut costs, it protects investors in risky environments and may persuade some of them to bid for deals they would not otherwise have considered. A problem with this regime is its demanding information requirements. To allow regulators to determine reasonable rates of return, the regime places them in a position to make decisions about the wisdom of investments and operating procedures, confusing the role of managers and regulators.²³ Box 17 presents a comparison of the benefits of price caps and rate-of-return regulation.

Price-basket controls such as the RPI-X formula used in the U.K. limit tariff and price increases to the increase in the retail price index (RPI) of a 12-month period minus a percentage that takes into account expected productivity gains.

One difference between the RPI-X and the rate-of-return formula is that the administrative burden of the former is lighter because it is less dependent on information supplied by the

Box 17: Price Cap versus Rate-of-Return Regulation

In practice, price cap and rate-of-return regulation have differences and similarities.

First, a rule such as RPI-X considers only how prices should be changed from year to year; it doesn't tell a regulator how to set them in the first year. A regulator wanting to use price cap regulation for a new service would need to set the initial price in some way, and one obvious option is to consider the price the firm needs to charge to earn a satisfactory rate of return. Second, a price cap needs to be periodically reviewed; a regulator cannot reliably predict what changes in productivity will be possible in say, 10 years. In the United Kingdom, price caps typically are reviewed every five years. And during a review, the regulator naturally takes into account the regulated utility's rate of return. If it is too high, the price cap is likely to be reduced; if it is low, the price cap may be relaxed.

But as long as price cap reviews are sufficiently infrequent (say, every five years), price cap and rate-of-return regulation should have different effects on the behavior of regulated firms. In particular, a price cap regime subjects businesses to more risk. For example, under price cap regulation, if a firm's costs rise, its profits will fall because it cannot raise its prices to compensate for the cost increases at least until the next price review, which may be several years away. Under rate-of-return regulation, however, the business would seek—and typically be granted within a year or so—a compensating price rise, so its profits would not change much. But if the firm's costs fall, the price cap regulation is more advantageous to the firm than rate-of-return regulation because it would retain more of the resulting benefits as profits. Thus, under rate-of-return regulation, consumers bear some of the risk that firms bear in price cap systems. The difference in impact means that firms subject to price cap regulation have a stronger incentive to lower their costs because they keep more of the cost savings than they would if they were subject to rate-of-return regulation. But the increased risk they bear tends to raise their cost of capital.

Source: Alexander, Ian, and Timothy Irwin. 1997. "Price Caps, Rate-of-Return Regulation, Risk and the Cost of Capital," In *The Private Sector on Infrastructure: Strategy, Regulation, and Risk*, pp. 33–34. Washington, DC: The World Bank Group.

regulated enterprise itself, it requires less verification on the part of the regulator, and it allows the regulator's discretionary interventions to be spaced more widely. Some argue, on the other hand, that the administrative burden of price caps may be higher rather than lower because in the end regulators need to perform the same analysis as required for rate-of-return regulation and they must forecast productivity improvements over the next four or five years.²⁴

In many ways, the biggest difference between price controls and rate-of-return regulation is one of emphasis. Regulators must not ignore the rate of return when they reset a company's price cap, but the price cap is an indirect, rather than a direct, control on the rate of return. Rate-of-return regulation has depended on formulae designed to ensure that the regulated company receives the right amount of revenue, and it has often been bogged down in legal arguments. The formulae are only a guide to the level of the price control, however, and still leave room for judgment. The regulator must decide whether to set prices so that they equal the company's predicted costs at the end of the review period or over the period as a whole. The regulator may look at the company's cash flow, as well as the discounted value of its costs and revenues. The regulator may use formulae to check the impact of alternative assumptions about factors such as the growth of demand, and might adopt a price control that seems slightly generous on the base case because otherwise the company would be in a difficult position if the alternative assumption became true. Finally, if a company knows that a formula will be used in a mechanistic manner, it will have an incentive to attempt to manipulate the inputs to the formula. It may be that giving some discretion to the regulator can reduce this incentive. This discretion should not be excessive, however, because the company must remain confident that it can recoup its investment, but it should also allow the regulator to use its judgment of what is fair under a particular set of circumstances, rather than simply blindly following a set of rules.²⁵

Revenue-yield controls allow the regulated company to set tariffs as long as the total revenue or revenue per unit of activity stays within limits established by the regulatory body. An advantage of this approach is that the regulator does not have to specify or review individual port tariffs. Disadvantages include the possible fluctuation of tariffs as the regulated firm seeks to earn the maximum revenues permitted, the complexity of setting the maximum allowable revenue per unit of activity, and the difficulty in forecasting demand if the upper limit is based on total revenues.²⁶

If several ports or companies within a port are regulated together, the regulator may be able to make “yardstick” comparisons among them. If all entities face the same operating conditions, they could, in theory, achieve similar levels of costs. The regulator then could calculate the average cost among them (either over the whole group or among the most efficient companies) and set price limits based on this level (although one should take into account that terminals have very different sizes and hence very different unit costs). Each company, then, has an incentive to reduce its costs, since this will not affect its allowed revenues.

4.6. Step 6. Specify Operating and Financial Performance Indicators

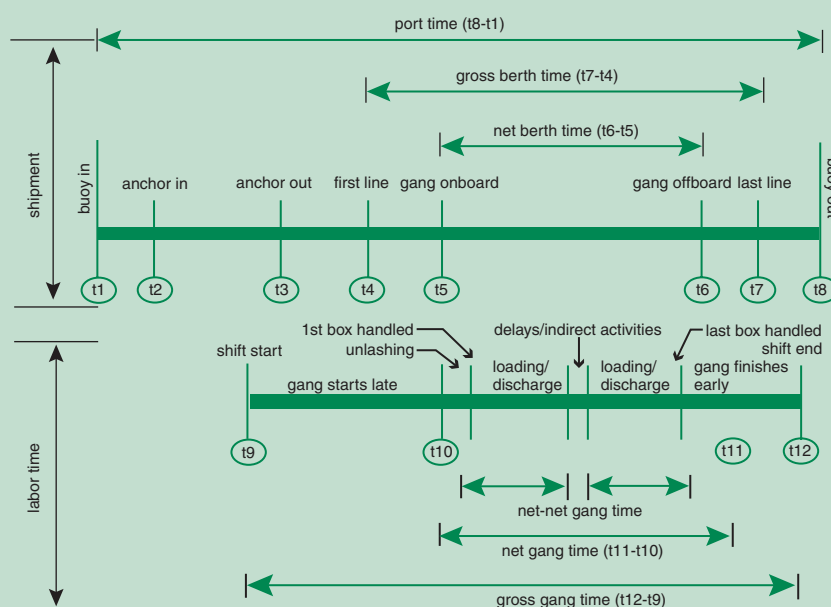
In an ideal competitive setting, market dynamics will force ports to offer efficient services at the lowest possible costs. But in many cases, port competition may be insufficient to induce a positive effect on port performance. For reasons explained elsewhere in this Toolkit, a variety of factors, particularly limited cargo volumes and the required levels of specialization (that is, limited cargo volumes for the different terminals or port facilities), will affect a country’s options to encourage competition. Low cargo volumes generally will either greatly restrict the number of terminal operators providing services, or may enable competition for vessel stevedoring while retaining the public sector’s monopoly over the yard or storage operation. Therefore, in environments where “ideal” levels of competition cannot be established, regulators must seek

ways to replicate the conditions that discipline competitive behavior. One of these ways is through regulation of service performance.

Regulators, typically through provisions in concession, operating, or lease agreements, will incorporate performance standards (or minimum thresholds) expected of the concession holder during the life of the agreement. These thresholds may change in accord with the investment obligations scheduled during the term of the agreement. For example, when a facility is first turned over to the operator, performance standards should consider the technology available in the port at the time of the agreement. This effectively means that the performance standards should be regularly reconsidered and possibly revised.

When considering the use of performance standards, it is helpful to view port services as a production process. This process refers to the range of services provided to the vessel and cargo from the port’s entrance buoy to the berth and on to the gate, and then from the gate to the berth and back out through the port’s entrance buoy. Box 18 shows the production process for a typical port. At the port’s buoy, the marine pilot will board the vessel, which may or may not anchor, depending on berth availability. The vessel then proceeds to the berth, where a tug will assist in the vessel’s berthing operation. Line handlers stand ready to tie the vessel to the berth, following which gangs will appear to provide the vessel with stevedoring and quay cargo handling services. Once the loading and discharging and lashing operations are complete, the line handlers will reappear to untie the lines, the vessel will receive a tug assist once again in the deberthing operation, and a pilot will reboard the vessel to guide it to the entrance buoy for the vessel’s departure from the port.

The vessel may be delayed at each step in the production process, which in turn affects the total time (referred to as port time) a vessel spends in the port. For example, on arrival at the entrance buoy, the vessel may have to wait

Box 18: Port Production Process

Source: Author.

for the pilot's arrival, a berth may not be available for the vessel, a tug may not be readily available for the berthing operation, stevedoring and cargo handling gangs may not be standing ready at the vessel's assigned berth, a crane may not be available for the vessel's hatch removal, a crane may break down during the loading or discharge operation, there may be nonoperational times (that is, times when work cannot proceed because gangs cannot be recruited as, for example, in ports where only one or two shifts per day are worked or where no work is carried out Sundays), and so on. Each of these events is associated with times, which, when summed, will result in the vessel's total time in port. In addition to these, the vessel may be vulnerable to a number of uncontrollable factors that may substantially increase the vessel's port time, such as having to wait for high tide at the entrance channel, inclement weather, or labor disruptions.²⁷

In the port planning process, analysts will frequently assess the relative performance of their ports against other ports in the region. They do this by developing a series of standardized indi-

cators that reflect the degree of efficiency at each step of the port operation. As Box 18 shows, the times at which each step starts and stops are documented, allowing for the calculation of a variety of parameters, also shown in Box 18, that the industry uses to calculate performance.

There needs to be a clear nexus between the parameters being measured and the tasks being performed by and under the control of the operator. The scope of services provided by the operator is dictated by the concession agreement. In exceptional cases, an operator may be given a concession covering all of the services between the entrance buoy and the gate. This means that the operator will provide pilotage and tug assist as well as all of the services conducted within the confines of the terminal. This would suggest that the regulator can reasonably apply indicators that include these services. The regulator, therefore, must be careful in its selection of performance measures. The regulator should be sensitive to what is controllable and what is not from an operator's point of view. For example, the "port accessibility" parameter

may be affected by the government's efficiency for clearing ship's documentation. The time spent for this purpose can greatly skew the performance of the operator, who is responsible for other elements that define port accessibility, such as pilotage and tug services. Therefore, what is acceptable performance from the regulator's point of view should consider only the factors that the operator can control. On the other hand, the terminal operator may be given responsibility only for services rendered between berth and gate, meaning that the regulator would exclude port accessibility as a parameter. One should not lose sight of the fact that indicators will only work if they have been set for specific tasks or operations and take into account the many factors that can influence performance.

An important factor for a country's shippers is vessel service availability, which comprises connectivity and frequency. Connectivity refers to the number of times a shipper's cargo is transferred or otherwise handled en route to its destination. Generally, the greater number of transshipment moves the cargo undergoes, the more time the cargo will take to reach its final destination. Frequency refers to the number of calls a vessel makes to the port within a prescribed period of time, usually referred to as weekly, twice-weekly, biweekly, fortnightly, or ten-day services (in the case of liner and feeder service trades). Increasingly, to maximize the utilization of their largest and most expensive vessels, shipping lines use a system of feeder vessels and transshipment ports to sort and redirect cargo. From a shipper's perspective, this may improve (increased frequency) or degrade (increased transit time and damage) service.

Assuming volumes justify it, a port may benefit from both connectivity and frequency if it can minimize the vessel's port time. If the carrier is subjected to congestion or delays, then it may avoid a call, minimize its calls, or impose penalty charges as part of its freight bill to shippers. Therefore, performance clauses within the concession agreement should focus on indicators that address the vessel's time in port (or at the

terminal, depending on the operator's responsibility). As earlier noted, the clauses should also recognize the responsibility and span of control accorded to the operator in the concession agreement. For example, a terminal operator should not be penalized if port time was less than desirable because of inefficiencies associated with pilotage (which the operator does not provide) and not the operation at the berth.

Regulators should be concerned with a vessel's time in port, regardless of the operator's responsibility, if for no other reason than to have the ability to ascertain the causes of undue vessel time. In terms of imposing performance standards on operators, however, the regulator should focus on what occurs at the berth, as the vast majority of countries that have undertaken port privatization have awarded concessions to operators for activities at the berth and within the terminal's backup area. Indicators that focus on berth performance also reflect what is happening on the vessel (while at berth) as well as in the backup area of the terminal.²⁸ Such measures should be general in that the regulator is concerned with the operator's overall productivity, and not with the productivity of every subactivity and the incremental times associated with them.²⁹

For concession agreements, the regulator should consider incorporating gross berth productivity, which refers to the number of moves (in the case of containers) or tons (in the case of bulk cargoes) handled in a unit of time, usually expressed in moves per hour or tons per hour. In addition to the time in which the vessel and its cargo are actually worked, gross berth time includes the time the vessel waits for the gang, lashing and unlash time, and other times associated with the preparation required to perform each activity.

The technology used is an important factor in determining what the number of moves per hour should be. For example, a terminal with no ship-to-shore crane must rely on the ship's own gear to handle the cargo. In the container trades, acceptable productivity levels may be on the order of 10–12 moves per gross hour per crane for such operations. In a port with mobile

cranes, expected productivity can be 15–20 moves per gross hour per crane, while gantry cranes can operate at 20–30 moves per gross hour per crane and higher.

Establishing such thresholds for bulk handling facilities is more difficult. There is a plethora of technologies available for solid bulk handling that offer a wide productivity range. For this reason, the regulator may consider regulating in accord with berth congestion factor or ship waiting rate, which compares the time a ship had to wait for a berth compared to the time it actually spent at berth. Simply put, berth occupancy denotes the total time a berth is occupied as a function of total available berth hours. An accepted standard would be a waiting rate that does not exceed 5 percent for a full container vessel, does not exceed 10 percent for a general cargo or breakbulk vessel, and 10–20 percent for a bulk vessel. In the event an operator exceeds this threshold, the operator could be required to invest in more productive technology to reduce the time that vessel would have to wait for a berth.

The performance threshold used by the regulator should, therefore, take into account the technology available at the port, or envisioned as part of the required investment program incorporated into concession agreements. In this regard, it is conceivable that the same agreement may have different performance thresholds by berth in accord with the port's capabilities at different stages of an investment program. This is because a port may have different technologies available at different berths at different times during the concession period, or vessels may simply choose not to use gantry cranes, which are relatively costly for smaller vessels. Box 19 lists some of the more common indicators used to measure port performance and that may be appropriate for inclusion in concession agreements.

4.7. Step 7: Establish an Appeal Process and Procedures

The design of an appeals regime should be a function of the specific institutional set-up and

legal traditions of a country. Courts may play a role where they have or can reasonably acquire the expertise, integrity, and efficiency needed to settle appeals on regulatory matters. Generally, in the design of a regulatory framework, the interests of speed and certainty (which lead to denying appeals against regulatory decisions or limiting the grounds and time frame for filing such appeals) should be balanced against those of fairness toward regulated entities (and consumers) and accountability of the regulator.³⁰

In situations where private port investors and operators are concerned that local conditions may not provide a competent, fair, and impartial appeal, the regulatory framework may specify that such appeals will be adjudicated by an agreed-on international arbiter (Box 20).

4.8. Step 8: Incorporate Regulatory Details into Laws and Contracts

Often, a concession agreement or management contract contains most of the regulatory provisions governing the performance of the private sector partner to the contract. In deciding what regulatory elements the contract should cover and in what depth, two questions arise³¹: Is it possible and desirable to encompass all the necessary regulatory provisions within the contract? If so, what degree of regulatory discretion should be available?

Though it is sometimes argued that a tightly written contract can remove the need for direct regulation, this is rarely the case. Even for a short-term management contract, someone needs to be able to monitor performance against the contract, have the authority to allow minor variations in contract specifications, and arbitrate disputes between the company and its customers and between the government and the contractor. And for longer-term concession and build-operate-transfer (BOT) contracts, it is usually neither possible nor desirable to have highly specified contracts, especially in countries undergoing rapid social, political, or economic change (although one should aim to have as much

Box 19: Port Performance Indicators

Some of the more common indicators of port operating and financial performance included in management contracts and concession agreements are presented below. Often separate values for indicators will need to be specified corresponding to different major categories of port traffic and vessel types (containers, breakbulk, dry and liquid bulk).

Operating Measures

Average ship turn around time	Total hours vessels stay in port (buoy-to-buoy time) divided by total number of vessels.
Average waiting rate	Total hours vessels wait for a berth (buoy-to-berth time) divided by total time at berth.
Gross berth productivity	Number of container moves or tons of cargo (for breakbulk and bulk cargoes) divided by the vessel's total time at berth measured from first line to last line.
Berth occupancy rate	Total time of vessels at berth, divided by total berth hours available.
Working time over time at berth	Total time of vessels being serviced at berth divided by total hours at berth. Reasons for non-working time may include labor agreements and work rules, rain, strikes, equipment failure, port operating schedules, and holidays.
Cargo dwell time	Cargo tons times days in port from time of unloading until the cargo exits the port, divided by cargo tons.
Ship productivity indicator	Total number of moves (for containers) or tons handled (for breakbulk and bulk cargoes) divided by total hours in port.
Tons per gang-hour	Total tonnage handled divided by total number of gang-hours worked.
TEUs per crane-hour	Total number of TEUs handled divided by total number of crane-hours worked.
Tons per ship-day	Total tonnage of cargo handled divided by total number of vessel days in port.

Financial Measures

Operating surplus per ton handled	Net operating income from port operations divided by total tonnage of cargo handled.
Charge per TEU	Total charges for container handling divided by total TEUs handled.
Collected charges per billed charges	Total collected charges as a percent of accounts billed (with 30-day lag).

Source: Author.

detailed specification in the contract as reasonably possible, therefore limiting the degree of uncertainty for investors, users, and governments alike).

Detailed, unambiguous, and very specific contract conditions do have advantages, especially in countries that do not yet have fully developed maritime and port legislation (see Box 21). In particular,

Box 20: International Arbitration

International arbitration is a form of dispute settlement under which the disputing parties agree to abide by the ruling of independent arbitrators, who are typically selected for their technical expertise in particular areas as well as their reputations for integrity. International arbitration has a long history in international trade and investment, where proceedings are typically held in a neutral third country. While the cornerstone of arbitration is the consent of each party, to be effective the decision or award needs to be enforceable in the country where the losing party holds assets. This is generally achieved by treating the award as equivalent to a judgment of a local court.

International arbitration is a potentially important part of the legal and regulatory framework for infrastructure privatization in three main contexts:

- Foreign investors will typically feel more comfortable submitting contractual disputes to a neutral and expert forum than to local courts, which may be perceived to be biased toward local parties, prone to political direction, slow, less expert, and sometimes corrupt.

- In some limited circumstances, arbitration may be an alternative to creating a separate regulatory agency. The key requirements would include that:

- ~ The dispute in question relates to the interpretation and enforcement of a specific obligation, rather than the need to exercise a broader regulatory discretion in the public interest.
- ~ Political acceptance of the decision does not require participation by a broad range of interests in addition to the disputing parties.
- ~ The dispute in question does not require urgent attention.
- ~ Compliance with the arbitrator's orders does not require ongoing supervision.

In some circumstances, arbitration may be adopted as an appeal mechanism for decisions of regulators. As in the previous case, a key requirement will be that there is some reasonably objective standard that can be applied in determining the appeal.

Source: Kerf, Michel, and Warrick Smith. 1996. "Privatizing Africa's Infrastructure: Promise and Challenge," p. 44. Technical Paper No. 337, World Bank, Washington, DC.

they help protect the private company from politically motivated and frequent changes in service requirements. By reducing revenue risk, such protection may help attract more bidders for the contract, reduce the cost of capital, and help the government strike a more advantageous bargain.

The experience generally has been that weak regulatory bodies have been given too much discretion without sufficient policy guidance to make decisions on matters left out of the contracts. In developing countries, the combination of weak regulatory bodies and poorly written contracts has resulted in an extremely large percentage of contracts being renegotiated. The losers in these negotiations have usually been the taxpayers, as governments often end up granting the private parties significant financial concessions.³²

One solution is to use rule-based contracts because they tend to make regulation easier in

the face of significant uncertainty. The challenge is to develop and incorporate rules that are fair and have reasonable information requirements. This is one of the advantages of price cap regulation.

The control of prices charged by a regulated firm is often characterized as a contest between the regulator and the service provider in which the two players do not share the same information. The asymmetry of information places the regulator at a disadvantage. Thus the regulator must define its information requirements and data processes early in the design of the concession contract and transaction. And it should take advantage of the government's leverage during bidding to extract information from concessionaires as well as commitments to continue providing flows of information to aid tariff reviews.

Box 21: Checklist of Regulatory Items for Port Operating Contracts

1. Are the rules for establishing the level and structure of tariffs clear?
2. Does the contractor have the freedom within specified limits to vary the tariff structure and levels?
3. What are the procedures for raising tariffs? What is the frequency of updating? Is there any requirement for operating efficiency gains?
4. Is the operator responsible for collecting all tariffs and charges?
5. Will the tariffs be remitted to the government or retained by the operator?
6. How will depreciation and taxes be treated in the rate structure?
7. If the tariff adjustment method inflates individual cost components, is a locally published index available for each component?
8. What are the trigger events that will allow the operator to adjust the tariff? Typical trigger events include significant variations in reference volumes, a change in the concession area, significant inflation requiring more frequent adjustments, and changes in tax and depreciation laws.
9. Are the guidelines for tariff appeals to the regulatory authority clear and unambiguous?
10. Will the concessionaire provide information as may be reasonably required by the regulator? What is the definition of reasonable?
11. What are the mechanisms for independent verification of financial data, data on the condition of assets, and the achievement of performance targets?
12. What are the provisions for market testing when the contractor subcontracts tasks or purchases services from associated companies?
13. What is the goal of contract information requirements?
14. What access will the regulator have to assets and records?
15. Who will pay for independent financial auditors and technical auditors and who will be responsible for their selection and training?
16. What are the provisions for submission of regulatory accounts and performance data and for disaggregated accounts to aid comparative competition?
17. What are the requirements for publication of financial information and performance standards?
18. Will the regulator require audits by an independent auditor? What auditing procedures will be used to confirm the tariff cost components?
19. What technical information is the concessionaire required to report?
20. What financial information is the concessionaire required to report?

Source: Author.

5. SUMMARY AND CONCLUSIONS

It is in a country's best interest to ensure that its ports operate efficiently and safely, that fair and competitive services are provided, and that ports support and encourage economic development locally and nationally.

The purpose of economic regulation is to ensure the efficient and competitive functioning of the port. Regulations often intervene in the functioning of markets, including the setting of controlling tariffs, revenues, or profits; controlling market entry or exit; and maintaining fair and

competitive behavior and practices within the port sector.

Decisions about reform strategy, industry structure, and regulatory frameworks are intimately intertwined. Therefore, evaluation of regulatory issues, options, and their consequences should be conducted early in the reform process. As shown by the reform experience in port and other sectors, delay can add to the regulatory burden and cost, restrict the availability of options for the regulator, and risk incompatibility between regulatory requirements and institutional capacity.

Due to port sector reforms, many ports have evolved into a landlord port authority, with facilities leased to private operators, that directly provide their services to carriers and shippers. In this situation, private operators may provide services previously provided by the public port authority, such as pilotage, tug assist, vessel stevedoring, storage, and yard services. Private operators are typically motivated by profit and may not necessarily provide facilities or services that are of economical, environmental, or social value if they conflict with profit maximization. Therefore there is a need for regulatory oversight to ensure that the public interest is protected. The scope of regulation depends on the extent of existing competition.

Factors indicative of the extent of competitiveness within the port sector include:

- *Transport options:* Competitiveness of a country's port and inland transport system in terms of total system costs and available options.
- *Operational performance:* Competitiveness of each port in terms of capacity and level of cargo handling services.
- *Tariff comparisons:* Competitiveness of each port in terms of level of port charges.
- *Financial performance:* Competitiveness of each port in terms of its overall profitability.

The lack of transport options, congested facilities, relatively high prices, and high profits alone or together may encourage terminal operators and other port service providers to breach the threshold of what may be regarded as acceptable competitive behavior.

Port sector reformers can choose from two general strategies to increase port sector competition: structural remedies and regulatory remedies. Clearly, the ideal strategy is the one that results in increased competition. Therefore,

when considering port privatization, reformers should strive toward structural improvements that increase the number of competitors before resorting to regulatory improvements.

Regulatory enhancements (particularly economic regulation) are intended to improve efficiency by correcting various market imperfections; essentially, the regulations attempt to force ports to behave as if they were competing in a perfect market.

Structural remedies include:

- Introduction of new berths or terminals.
- Division of the existing port into terminals.
- Entering into short-term operating agreement, lease, or management contract.

Regulatory remedies include tariff filing and setting of tariffs and rate-of-return thresholds.

To help design an economic regulatory policy for the port sector, the following principles should be considered:

- Government should clearly understand the competitive environment of the port sector.
- The regulator should clearly define what form of economic regulation (for example, rate of return or tariff setting) is to be applied and under what circumstances.
- Responsibilities for port operational and competition regulation should be formally separated. Because of the risk of agency capture and the potential conflict of interest between the two forms of regulation, they should be assigned to two different entities.
- Policy and case deliberations should include the opportunity for affected parties to present their views.
- Decisions made by the regulator should be enforceable with recourse for appeal.

ANNEX A. PORT TARIFFS: GENERAL STRUCTURE, ITEMS, AND FLOW OF CHARGES

As mentioned earlier in this module, tariff control is the most commonly used method for economic regulation of ports. Tariffs differ from port to port as they tend to be a reflection of the services offered (for example, container handling, tug assist, and pilotage), the facilities being provided (for example, gantry cranes, storage yard, or sheds), the party that incurs the tariff charge (for example, the carrier or ship's agent, or the shipper), and the basis on which a tariff item is calculated (for example, pilotage charges based on the vessel's gross registered tons or vessel draught). Because of these differences, tariffs may seem highly fragmented and complex, but there is a core set of essential services required for handling ships and cargoes that all ports typically offer. These can be referred to as basic services. Regulators tend to focus on these services because they represent the bulk of the total charges and are commonly offered by all ports. Box A-1 shows the ranges of the percentages of total port charges represented by a core set of services.

Such services can be broken down into two categories:

- *Services to vessels:* Basic ship services encompass the activities and related charges for ships entering and exiting the harbor and for berthing and deberthing. These include: pilotage, pilot boat, tug assist (berthing and deberthing), line handling, and use of channel and navigation aids (harbor fee). The basic ship services also include the use of the related port facilities (for example, dockage and berth occupancy) and of the general port infrastructure, usually covered by the port dues.
- *Services to cargo:* The basic cargo services include three related activities: (1) transfer of cargo between ship and dock or storage; (2) transfer of cargo between

Box A-1: Relative Weights of Different Port Charges

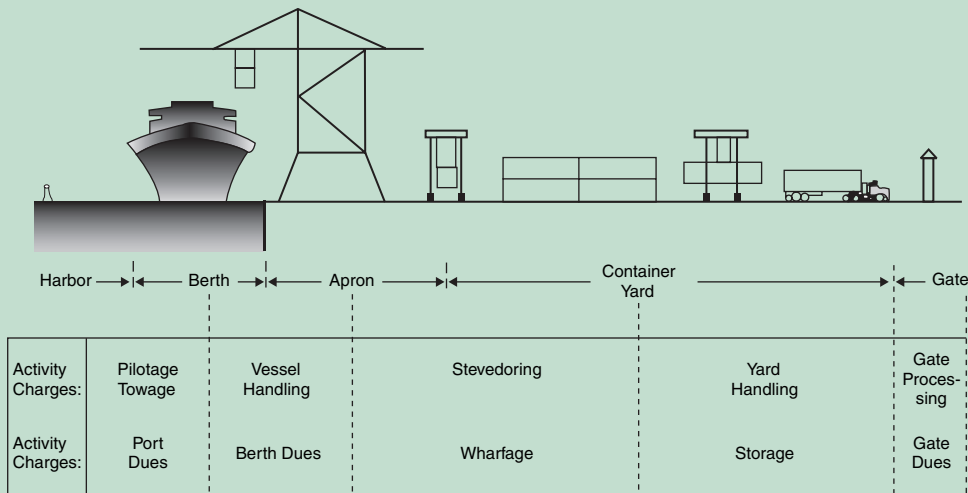
Item	Percent of total charges
Port tariffs on the use of infrastructure	5–15
Berthing services	2–5
Cargo handling	70–90
Freight Forwarding	3–6

storage and outside the gate; and (3) intermediate storage in the yard (in the case of containers) between the ship and yard transfers for a specified number of work days ("free time"). The related charges are for the use of labor, shore handling equipment, yard machines ("rental"), and port facilities ("use of installations" and "wharfage"). Box A-2 shows the relationship of these charges within the typical container terminal.

In determining if tariff regulation is necessary, the regulator first has to identify the specific service and the service provider. In the traditional port, the public port authority was typically an operating port, meaning that the public entity provided virtually all of the basic services noted above. From a regulator's point of view, this was a simple matter because of the public entity's monopoly position over all basic services. Generally, one service provider would be regulated.

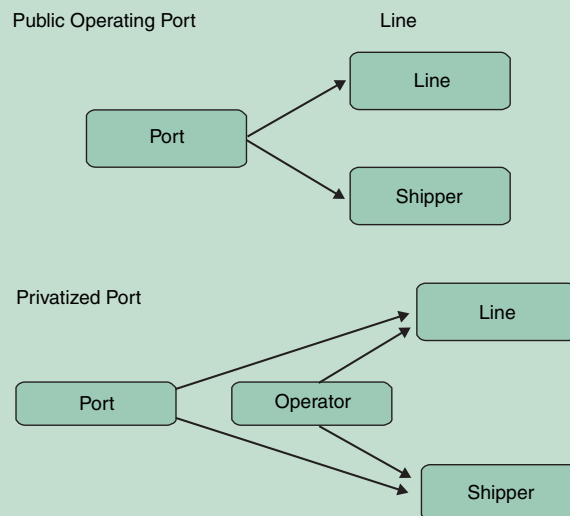
Today, many ports have evolved into a landlord port authority where facilities are leased by private operators, who in turn directly provide their services to carriers and shippers. In this situation, private operators may provide services previously under the domain of the public port authority, such as pilotage, tug assist, vessel stevedoring, storage, and yard services. Because of this shift in service provider responsibility, the entire tariff system as well as the transaction process has changed. The port authority (or other government entity) will likely continue collecting a navigation charge or port dues, and

Box A-2: Relationship between Port Charges and the Location Where the Charge is Incurred



Source: Author.

Box A-3: Transaction Complexities Pre- and Postprivatization



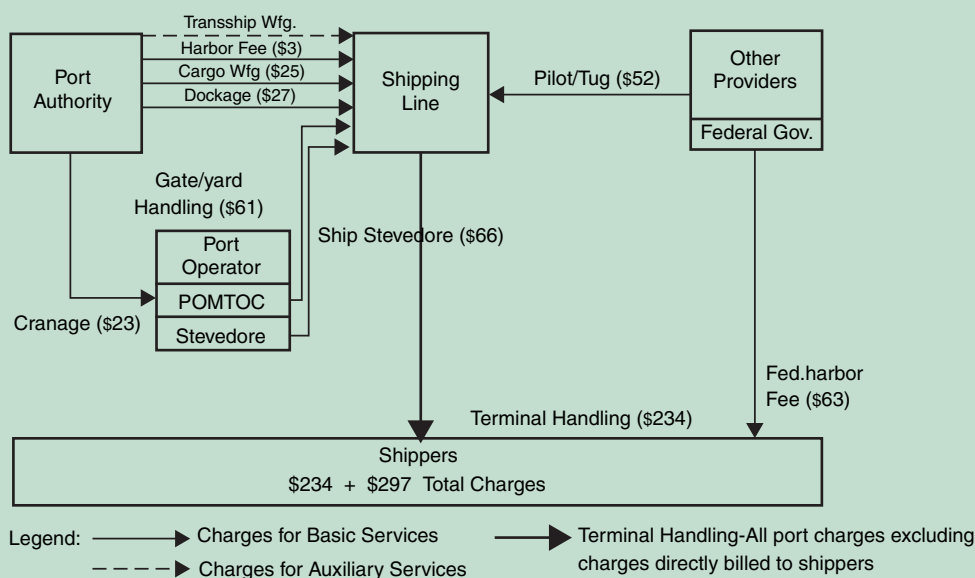
Source: Author.

may also charge for dockage and gate service fees, depending on the structure of the lease with the operator as well as the port's facility configuration.³³ The port authority will also have a lease arrangement with the operator, who generally charges fees for the range of services provided from berth to gate (for example, vessel stevedoring, yard handling, or storage).

Thus, the regulator has gone from single-entity regulation to potentially regulating a full range of services provided by a number of operators.³⁴

Box A-3 shows the evolving complexity that privatization has introduced from a transaction point of view. Under the public operating port, the transaction process was quite clear, as ports

Box A-4: Port Charges in Miami, Florida



Source: Author.

assessed charges to only two parties—shipping lines and shippers. Under a privatized port arrangement, the port authority applies charges to operators, lines, and shippers. In potential antitrust settings, therefore, the regulator needs to be concerned not only with the port authority's charges, but also the many private operators providing basic services, dramatically increasing the potentially regulated population.

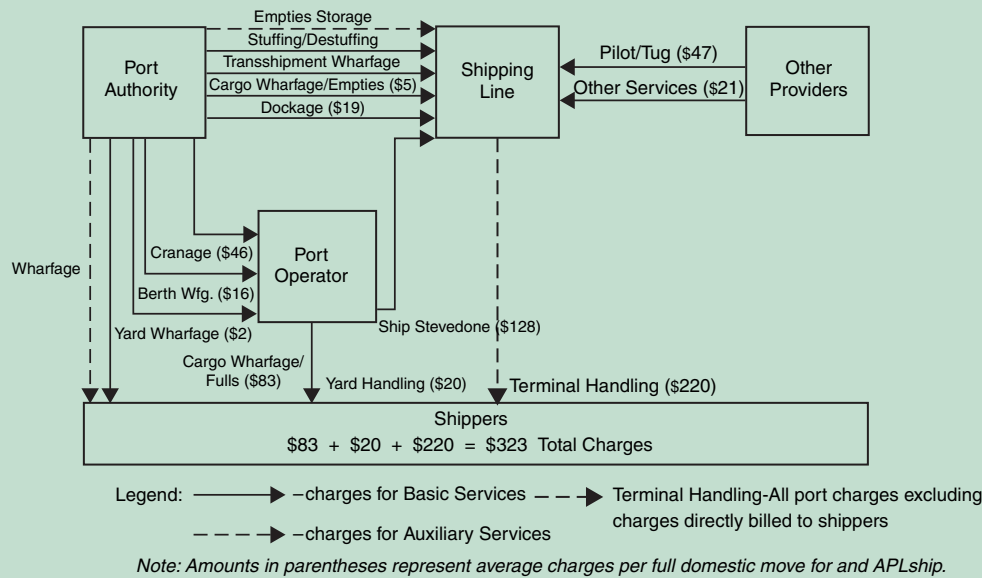
Box A-4 shows an actual case of the interrelationships of port charges in the Port of Miami for containerized cargoes. The port is established as a landlord authority under local government jurisdiction (Miami/Dade County). At the time of writing, ship charges in Miami, like in most U.S. ports, include a special fee called the Harbor Maintenance Fee, collected by the U.S. federal government to cover dredging and aids to navigation. The charge is 0.125 percent of the cargo value, or about \$63 per average box of \$50,000 value. There is, however, a second charge called a harbor fee applied by the local port authority, which is based on the ship's gross registered tons (GRT).

Dockage in Miami is also charged on the basis of GRT at a rate of \$0.24 per GRT for every 24-hour stay. Cargo charges in Miami include wharfage, at \$1.60 per ton, or the equivalent of \$22.40 per 14-ton box, which has declined almost 6 percent since 1998. Cargo wharfage is billed directly to the line (carrier), which in turn incorporates the wharfage charge with the freight bill.

There are two separate handling charges, ship handling (stevedoring) and terminal or gate handling. Ship handling is performed by private stevedores, collecting a range from \$35–50 per container, excluding crane services. Terminal handling is performed by POMTOC, a private sector joint venture of local stevedores and P&O Ports. POMTOC charges approximately \$45–55 per move, for any type of container, including empties. The charge for gantry cranes is based on an hourly rate of \$450 per hour (straight time). The cranes are owned by the port authority, but operated by the private stevedores and maintained by a private company.

The port has no direct charging relationship with shippers, only with shipping lines (carriers)

Box A-5: Port Charges in Cartagena, Colombia



Source: Author.

and operators. Shippers pay directly only the federal Harbor Maintenance Fee.

Box A-5 shows how the flow of charges may differ from port to port. The figure also illustrates the flow of port charges for the Port Society of Cartagena, whose tariff reflects the operating arrangement in that port. In Miami, the facilities are administered by the local port authority. In Cartagena, as elsewhere in Colombia, the facilities are administered by a private sector company referred to in Colombian law as a port society. The port society's primary responsibility is to operate the backup area (the area behind the berth), while private stevedoring companies handle the loading and discharging operation.³⁵ In addition, other private operators provide pilotage and tug services. These operators, along with the stevedoring companies, are charged an installation user charge by the port society. Unlike the

Miami case, the port society has a direct charging relationship with the shippers and also charges the port operators (stevedoring companies) directly for berth and yard wharfage. In Colombia, shippers are also charged directly for yard handling by the stevedoring companies.

The emerging complexities in privatized settings suggest that regulators will need to be more cognizant of how port services are provided and what party is charged by whom. It is conceivable that one country can have a variety of charge flow configurations depending on the operating arrangements in a particular port. As is shown in figures A-3 and A-4, depending on the extent of competition, it is possible that regulators will need to monitor the pricing practices of not only the port authorities, but also the various private parties engaged in port operations.

ENDNOTES

- 1 World Bank. 1997. *Toolkits for Private Participation in Water and Sanitation, Module 1: Selecting an Option for Private Sector Participation*, p. 20. Washington, DC: World Bank.
- 2 Return on equity (ROE) = net income/shareholders equity; return on assets (ROA) = net income/total assets.
- 3 Trujillo, L., and G. Nombela. 1998. "Privatization and Regulation of the Seaport Industry." December, p. 21.
- 4 Perfect competition is a noble goal, but rarely achievable. While there are cases of markets with large numbers of sellers and buyers, these sellers and buyers are seldom fully informed about their alternatives. The information available to them may be of questionable reliability or costly to acquire, while at the same time there may be artificial restraints (for example, government regulation of prices or resource mobility) that affect the competitive environment. Many might argue that the U.S. port sector represents a perfectly competitive market given excess capacity and a plethora of intermodal and port options. Many of these assets, however, either directly (for example, construction grants) or indirectly (for example, tax-exempt status on the interest of bonds issued to finance construction) are subsidized, thereby distorting the market supply in response to demand.
- 5 But there are a number of cases where the mere presence of a private owner changed the efficiency of the port or the terminal because a very different company culture was introduced (for example, Klang Container Terminal in Malaysia).
- 6 World Bank. 1997. *Toolkits for Private Sector Participation in Water and Sanitation, Toolkit 1: Selecting an Option for Private Sector Participation*, Annex 1. Washington, DC: World Bank.
- 7 World Bank. 1996. *Infrastructure Delivery: Private Initiative and the Public Good*, pp xxi–xxii and pp. 54–61. Washington, DC: World Bank Economic Development Institute.
- 8 In many ports, load-bearing capacities may be different at each berth. For example, one berth may be designed to handle the weight of gantry cranes on the berth's apron, while other berths are designed to handle lower weight breakbulk cargoes. There are, of course, engineering solutions to expanding an apron's capacity, which require substantial investment. This investment may be justified with anticipated cargo volumes.
- 9 Regulators differentiate between tariff filing and tariff monitoring. Tariff filing normally is required each time a service provider adjusts its tariff. The filing is a means of informing port users about generally available prices for services. This allows port customers to detect any abnormalities in pricing behavior (for example, unjustified pricing discrimination) and, in the event such abnormalities exist, to register a complaint with the regulator. In the event a complaint is received, usually for alleged discriminatory, collusive, or predatory pricing practices, the tariff filing requirement gives the regulator a pricing history to support its investigative efforts. Where the regulator perceives a relatively high risk of anticompetitive behavior, or if there is a history of violations on the part of one or more operators, then the regulator may monitor the tariffs that are filed, assessing for itself the anticompetitive impact of the new tariff at each filing.
- 10 In some countries, setting the tariffs is distinct from approving tariffs. For example, in Nicaragua the operator (or cargo handling company) submits a tariff for approval through the Empresa Nacional de Puertos (EPN, the national ports authority), which reviews the tariff and forwards it for final approval to the Ministry of Transport and Infrastructure. EPN may attach comments regarding its assessment of the fairness and reasonableness of the tariff, but its role is not

to assess the proposed tariff's relationship or effect on industry competitiveness (this responsibility does not yet exist for any sector in Nicaragua). In Colombia, prior to its tariff liberalization in 1995, the Superintendente General de Puertos (SGP, the General Port Superintendent) set the tariffs, initially both minimum and maximum charges and eventually only maximum tariffs. In practice, the effect is the same, as the regulator sets the tariff by either dictating one or approving one.

- 11 World Bank. 1996. *Sustainable Transport: Priorities for Policy Reform*, p. 104. Washington, DC: World Bank.
- 12 World Bank. 1996. *Sustainable Transport: Priorities for Policy Reform*, pp. 86–87. Washington, DC: World Bank.
- 13 Many port authorities, as part of their published tariffs, will impose operational regulations relevant to both carriers and terminal operators. Operational regulations can refer to a variety of topics, such as vessel reporting requirements, navigation rules within the port's jurisdiction, invoicing rules for port dues, information access rules (for example, anchorage, vessel lighting, speed, and so forth), port working hours, reporting procedures for environmental incidents within the port area, detainment rights for vessel damage to facilities, or other rules.
- 14 This is an important point. There are basically only two ways for determining the basis on which tariffs should be set. The first is tariff benchmarking with other ports (or their operators) that operate in similar conditions. The second is to require the operator to provide audited financial data with careful consideration of the debt service obligations from investments. In this sense, the regulator would have to make certain assumptions about what the rate of return is and what rate is considered "reasonable." What the regulator considers reasonable may not adequately consider the initial investment risk that the operator made. A complicating factor concerns those operators that may offer bundled services, only one of which the regulator intends to regulate. The complexity here is derived from the ability to assign costs to each of these bundled services. Finally, operators always have a monopoly on their financial information. What they report will not necessarily be an accurate reflection of reality. Indeed, some operators may keep separate accounting books, one for reporting purposes and one for proprietary purposes. Because of the uncertainty and questions of data reliability, regulators will often establish a mini-max or maximum tariff that reflects the range of uncertainties associated with defining an operator's cost structure.
- 15 The steps, while presented in a logical order, do not necessarily need to be implemented in the sequence presented.
- 16 Guislain, Pierre. 1997. *The Privatization Challenge: A Strategic, Legal, and Institutional Analysis of International Experience*, p. 258. Washington, DC: World Bank.
- 17 Guislain, Pierre. 1997. *The Privatization Challenge: A Strategic, Legal, and Institutional Analysis of International Experience*, p. 258. Washington, DC: World Bank.
- 18 Eustache, Antonio. 1999. *Privatization and Regulation of Transport Infrastructure in the 1990s: Successes...and Bugs to Fix for the Next Millennium*, p. 28. Washington, DC: World Bank.
- 19 See in this respect Module C.63 of the International Labour Organization's Portworker Development Program (PDP).
- 20 Guislain, Pierre. 1997. *The Privatization Challenge: A Strategic, Legal, and Institutional Analysis of International Experience*, pp. 280–81. Washington, DC: World Bank.
- 21 Smith, Warrick. 1997. "Utility Regulators—The Independence Debate." In *The Private Sector on Infrastructure: Strategy, Regulation, and Risk*, September, p. 22. Washington, DC: World Bank.

- 22 Eustache, Antonio. 1999. *Privatization and Regulation of Transport Infrastructure in the 1990s: Successes...and Bugs to Fix for the Next Millennium*, pp. 24–25. Washington, DC: World Bank.
- 23 Burns, Phil, and Antonio Eustache. 1999. *Infrastructure Concessions, Information Flows, and Regulatory Risk*. Washington, DC: The World Bank Group.
- 24 Guislain, Pierre. 1997. *The Privatization Challenge: A Strategic, Legal, and Institutional Analysis of International Experience*, p. 268. Washington, DC: World Bank.
- 25 Green, Richard, and Martin Rodriguez Pardina. 1999. *Resetting Price Controls for Privatized Utilities: Manual for Regulators*, pp. 11–12. Economic Development Institute, World Bank, Washington, DC.
- 26 Green, Richard, and Martin Rodriguez Pardina. 1999. *Resetting Price Controls for Privatized Utilities: Manual for Regulators*, p. 64. Economic Development Institute, World Bank, Washington, DC.
- 27 The operator, itself, may also be affected by factors outside its control, such as ship size, number of moves for loading or discharging, type and number of hatch covers, vessel dimensions (width and depth determine the path of the container's movement), and stowage plan.
- 28 Berth performance is a reflection of both efficiency at the berth as well as efficiency for the operations behind it. Yard congestion itself can cause delays in vessel loading and discharge.
- 29 Operators, on the other hand, should be concerned with these incremental measures because they point to underlying causes for overall productivity performance.
- 30 Guislain, Pierre. 1997. *The Privatization Challenge: A Strategic, Legal, and Institutional Analysis of International Experience*, p. 280. Washington, DC: World Bank.
- 31 World Bank. 1997. *Toolkits for Private Sector Participation in Water and Sanitation, Toolkit 1: Selecting an Option for Private Sector Participation*, Annex 2, p. 33. Washington, DC: World Bank.
- 32 Eustache, Antonio. 1999. *Privatization and Regulation of Transport Infrastructure in the 1990s: Successes...and Bugs to Fix for the Next Millennium*, p. 29. Washington, DC: World Bank.
- 33 For example, the port authority may have a general perimeter gate in which initial access is cleared by port authority personnel. An “interior” terminal gate is under the control of the operator that leases the facility.
- 34 The extent to which regulation is necessary, of course, is dependent on the risk of monopolistic or oligopolistic behavior on the part of both the port authority as well as the firms. Even in a post privatization environment, the port authority may still be considered a monopoly by virtue of facility ownership (for example, the landlord model in an environment where there is no inter-port competition) and in terms of its charges for navigation, wharfage, and dockage (assuming it charges these). In addition, even in nonmonopolistic settings there may still be a need for antitrust concerns for specific services in light of the highly concentrated markets that have resulted post privatization.
- 35 This arrangement is changing, however, as the society is now providing vessel stevedoring services for vessels calling to berths where the society's gantry cranes are located.

REFERENCES

- Alexander, Ian, and Timothy Irwin. 1997. “Price Caps, Rate-of-Return Regulation, Risk and the Cost of Capital.” In *The Private Sector on Infrastructure: Strategy, Regulation, and Risk*, pp. 33–34. Washington, DC: The World Bank Group.

- Burns, Phil, and Antonio Eustache. 1999. *Infrastructure Concessions, Information Flows, and Regulatory Risk*. Washington, DC: The World Bank Group.
- Eustache, Antonio. 1999. *Privatization and Regulation of Transport Infrastructure in the 1990s: Successes...and Bugs to Fix for the Next Millennium*, p. 28. Washington, DC: World Bank.
- Green, Richard, and Martin Rodriguez Pardina. 1999. "Resetting Price Controls for Privatized Utilities: Manual for Regulators." Economic Development Institute, World Bank, Washington, DC.
- Guislain, Pierre. 1997. *The Privatization Challenge: A Strategic, Legal, and Institutional Analysis of International Experience*. Washington, DC: World Bank.
- Kent, P. E., and A. Hochstein. 1998. "Port Reform and Privatization in Conditions of Limited Competition: The Experience in Columbia, Costa Rica, and Nicaragua." *Journal of Maritime Policy and Management* 25 (4): 313–333.
- Kerf, Michel, and Warrick Smith. 1996. "Privatizing Africa's Infrastructure: Promise and Challenge." Technical Paper No. 337, World Bank, Washington, DC.
- McCallum, Elizabeth. 1999. "Privatising Ports: A Legal Perspective." *Privatisation International* November, pp. 53–55.
- Smith, Warrick. 1997. "Utility Regulators—The Independence Debate" In *The Private Sector on Infrastructure: Strategy, Regulation, and Risk, September*, Washington, DC: World Bank.
- .1997. "Terminal velocity." *Containerization International* June, p. 95.
- Trujillo, Lourdes, and Gustavo Nombela. 1999. "Privatization and Regulation of the Seaport Industry." Universidad de Las Palmas de Gran Canaria Dpto. Análisis Económico Aplicado 35017 Las Palmas de Gran Canaria (Spain), December, p. 21.
- UNCTAD (United Nations Conference on Trade and Development). 1998. Review of Maritime Transport. UNCTAD RMT 98/1: New York and Geneva.
- UNCTAD. 2005. Review of Maritime Transport. UNCTAD/RMT: New York and Geneva, 2005.
- World Bank. 1996. *Infrastructure Delivery: Private Initiative and the Public Good*, Washington, DC: World Bank Economic Development Institute.
- World Bank. 1996. *Sustainable Transport: Priorities for Policy Reform*. Washington, DC: World Bank.
- World Bank. 1997. *Toolkits for Private Participation in Water and Sanitation, Module 1: Selecting an Option for Private Sector Participation*. Washington, DC: World Bank.

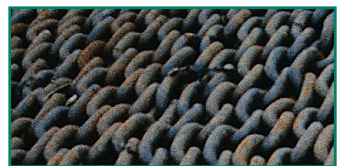
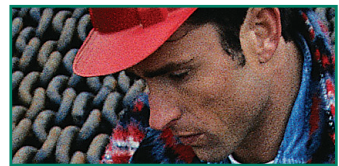


PORT REFORM TOOLKIT

SECOND EDITION

M O D U L E 7

LABOR REFORM AND RELATED SOCIAL ISSUES



THE WORLD BANK

© 2007 The International Bank for Reconstruction and Development / The World Bank

All rights reserved.

The findings, interpretations, and conclusions expressed herein are those of the author(s) and do not necessarily reflect the views of Public-Private Infrastructure Advisory Facility (PPIAF) or the Board of Executive Directors of the World Bank or the governments they represent.

Neither PPIAF nor the World Bank guarantees the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of PPIAF or the World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

The material in this work is copyrighted. Copyright is held by the World Bank on behalf of both the World Bank and PPIAF. No part of this work may be reproduced or transmitted in any form or by any means, electronic or mechanical, including copying, recording, or inclusion in any information storage and retrieval system, without the prior written permission of the World Bank. The World Bank encourages dissemination of its work and will normally grant permission promptly.

For all other queries on rights and licenses, including subsidiary rights, please contact the Office of the Publisher, World Bank, 1818 H Street NW, Washington, DC 20433, USA, fax 202-522-2422, e-mail pubrights@worldbank.org.

ISBN-10: 0-8213-6607-6

ISBN-13: 978-0-8213-6607-3

eISBN: 0-8213-6608-4

eISBN-13: 978-0-8213-6608-0

DOI: 10.1596/978-0-8213-6607-3

MODULE SEVEN CONTENTS

1. Context for Labor Reform	313
2. Key Labor Issues	317
3. Labor Involvement in Port Reform	318
4. Organizing to Address Labor Reform: A Task Force Approach	321
5. The Institutional Framework for Labor Reform	323
5.1. Redefining the Concept of Social Equity	323
5.2. Meeting Commercial Needs	324
5.3. Fostering Competition	325
5.4. Government's Role	325
5.5. Time Frame for Port Labor Reform	326
6. Developing the Workforce Rationalization Plan	326
6.1. Alternatives to Dismissals	327
6.2. Elements of a Staff Retrenchment Program	328
6.3. Pitfalls in Designing and Implementing Severance Packages	329
6.4. Rationalizing the Workforce: When and By Whom?	331
6.4.1. Prereform Rationalization	331
6.4.2. Postreform Rationalization	332
6.5. Who Should Pay for the Expenses of Port Labor Rationalization?	333
7. International Support for Labor Adjustment	334
8. Postreform Labor Management Relations	336
References	336
Annex I. World Bank Labor Adjustment Projects	337
Annex II. List of Organizations That Have Obtained and Renewed an International Labour Organization Portworker Development Program License	351

BOXES

Box 1: Changes in Economic Policies: Impact on Port Labor	314
Box 2: Trends in Gang Strength, 1970s and 1980s	316
Box 3: Labor Competition in India and Brazil	317
Box 4: Factors Prompting Port Labor Reform	317
Box 5: Port Labor Reform in the European Union	318
Box 6: Possible Effects of Reform on Employment	319
Box 7: Working with Labor Unions: The Ghana Case	322
Box 8: Sample Reference Clauses in a Concession Agreement on Employee Transfer	323
Box 9: The Productivity Commission of Australia	324
Box 10: Institutional Framework for Labor Reform Key Findings	325
Box 11: Job Security in Ports	326
Box 12: Social Plans at Moulinex	328
Box 13: Port Staffing Benchmarks	330
Box 14: A Downsizing Decision Tree	332

Acknowledgments

This Second Edition of the Port Reform Toolkit has been produced with the financial assistance of a grant from TRISP, a partnership between the U.K. Department for International Development and the World Bank, for learning and sharing of knowledge in the fields of transport and rural infrastructure services.

Financial assistance was also provided through a grant from The Netherlands Transport and Infrastructure Trust Fund (Netherlands Ministry of Transport, Public Works, and Water Management) for the enhancement of the Toolkit's content, for which consultants of the Rotterdam Maritime Group (RMG) were contracted.

We wish to give special thanks to Christiaan van Krimpen, John Koppies, and Simme Veldman of the Rotterdam Maritime Group, Kees Marges formerly of ITF, and Marios Meletiou of the ILO for their contributions to this work.

The First Edition of the Port Reform Toolkit was prepared and elaborated thanks to the financing and technical contributions of the following organizations.

The Public-Private Infrastructure Advisory Facility (PPIAF)

PPIAF is a multi-donor technical assistance facility aimed at helping developing countries improve the quality of their infrastructure through private sector involvement. For more information on the facility see the Web site: www.ppiaf.org.

The Netherlands Consultant Trust Fund

The French Ministry of Foreign Affairs

The World Bank

International Maritime Associates (USA)

Mainport Holding Rotterdam Consultancy (formerly known as TEMPO), Rotterdam Municipal Port Management (The Netherlands)

The Rotterdam Maritime Group (The Netherlands)

Holland and Knight LLP (USA)

ISTED (France)

Nathan Associates (USA)

United Nations Economic Commission for Latin America and the Caribbean (Chile)

PA Consulting (USA)

The preparation and publishing of the Port Reform Toolkit was performed under the management of Marc Juhel, Ronald Kopicki, Cornelis "Bert" Kruk, and Bradley Julian of the World Bank Transport Division.

Comments are welcome.

Please send them to the World Bank Transport Help Desk.

Fax: 1.202.522.3223. Internet: Transport@worldbank.org

7

MODULE

Labor Reform and Related Social Issues

SECOND EDITION

This module is the seventh of eight modules comprising the Port Reform Toolkit. The Toolkit is designed to help government officials and private interests alike navigate the process of port reform to achieve more modern, efficient, and financially viable seaports and related intermodal facilities and services.

The labor reform module deals with some of the most critical elements of port reform: the many labor related issues associated with port ownership and operations. It is designed to help government decision makers identify the key forces affecting port labor today, understand the need for reform in a competitive environment, evaluate alternative ways of approaching labor reform, and pursue reform in a way that maximizes efficiency and minimizes labor dislocation and risks to potential port investors and operators.

1. CONTEXT FOR LABOR REFORM

Port labor from crane and equipment operators to stevedores to harbor pilots is one of the keys to success or failure in today's competitive port and international trade environment. Too often port labor is blamed for a port's failure to play an appropriate and productive role in port operations and its nation's economic development. Overstaffing, outdated and inefficient work rules, poor skills and training, inflated pay scales, and unreliability are among the most prominently cited problems contributing to high costs and inefficient operations in many ports. To be fair, outdated management practices can sometimes add to these problems by overlooking

the benefits of a more participatory approach to port management.

Ports and port labor do not exist in isolation. They are an integral part of, and in turn are affected by, national economic and trade policies, changes in markets and services, and technological advances. Box 1 illustrates how changes in economic policies occurring over the last decades have affected port labor.

These changes in economic policies have been accompanied by other developments in technology, logistics, and transportation that have led to further reductions in the demand for dock workers. The shift from "port to port" to "door to door" cargo delivery systems, for example, and the use of inland container facilities have led to

Box 1: Changes in Economic Policies: Impact on Port Labor

Economic Policies	Characteristics	End Result
Semiautonomous economic policies (until mid 1980s)	<p>International trade:</p> <ul style="list-style-type: none"> Freedom in the selection of inputs, finished goods, services, funds, and labor, usually on a domestic or local basis. National markets were reserved for domestic producers, inefficient production methods, trade barriers, currency exchange restriction, bias against exports. 	<p>Labor-intensive technologies:</p> <ul style="list-style-type: none"> Limited degree of specialization required to operate single function lifting equipment. Cargo handling and warehousing monopolies. Direct and cross subsidies. Increasing wages, avoidance of new technologies, and low productivity were all institutionalized as measures that protected national producers. Political influence on decisions as to which and how much cargo handling equipment to acquire. Capital-intensive equipment not viewed as socially acceptable. Expansion of the labor force simultaneously with demand, fragmentation of functions, and dock worker registration systems. More cargo, more workers.
Export-oriented economic policies (from mid 1980s onward)	<p>Global trade:</p> <ul style="list-style-type: none"> Economic activities restructured, customs duties reduced, competition intensified, domestic producers meet the demands of international markets locally Freedom in the selection of inputs, finished goods, services, funds, and labor, usually on a worldwide basis. Vigorous worldwide competition for goods and services requires labor to respond to the needs of port customers. 	<p>Capital intensive-technologies:</p> <ul style="list-style-type: none"> Ports can provide services that are competitive and commercially attractive. Productivity increased and costs reduced by exposing port labor to market mechanisms. Workforce reduction, more cargo, less direct port workers. Training and retraining programs to enhance skills of workers and safe working conditions. New techniques and work organizations introduced to motivate the labor force. Participation of workers in workplace decisions. Monetary incentives granted on the basis of customers' satisfaction, performance of cargo handling gangs, and participation in enterprise profit share linked to individual and team efforts.

Source: Author.

many containers being stuffed and stripped by consignors' or consignees' employees on their own premises, often distant from the port. Handling systems have been extensively mechanized and are also increasingly automated.

Box 2 shows how the size of work gangs in a number of ports has changed, or not, in response to changing economic and competitive markets. In many of the ports shown in Box 2, the number of workers per gang was very large, and remained mostly unchanged between 1970s and 1980s despite the fact that cargoes increasingly were being transported in containers with the use of modern equipment. In developing countries, where ports were operated for the most part by the public sector, a combination of factors such as surplus labor, strict application of union discipline, limited resources to acquire modern cargo handling equipment, poor training, and government policies to maintain or create employment contributed to overmanning in ports.

In the 1990s, private interests made significant capital investments in ports around the world. Continued imposition of large work crews and rigid work rules in many ports, however, have undermined the value of these investments, and, hence, the commercial feasibility of ports and terminals, both in developing and developed countries. For example, until April 1998, in various Australian ports there were typically 11 or 12 workers per shift per gantry crane. With the new enterprise agreement, this number was reduced to six workers per shift per crane, and substantial productivity gains were achieved (see Box 2). In the Port of Santos, Brazil, in 1997, labor and management reached an agreement reducing from 12 to 10 the number of workers per shift per crane. As a general matter, port terminal operators would rather employ a smaller number of workers per shift while complying with safety and health regulations, and pay higher wages for a highly efficient, lean team.

Port labor reform presents a difficult challenge for government decision makers and therefore it is unlikely to take place unless forced by unfavorable existing conditions. As a result, the port

labor reform process is typically initiated only when at least one, or more likely a combination, of the following three influences are present:

- *Competition:* Challenges a port or a terminal faces from competing terminals, either within the same port or from other ports in local or regional markets, often lead public officials, port users, and shippers to press for reforms to improve efficiency and lower costs (see Box 3).
- *Community pressure:* As a result of competitive challenges, the port and trade community can be expected to object to restrictive port labor work practices, agreements, and regulations, all of which lead to high labor costs, low productivity, and high prices for port services.
- *Political commitment:* When the two foregoing factors exist, they can galvanize remedial action in the form of a plan undertaken by a public authority or proposed by a candidate for public office as part of a political platform. The intent is to reform port labor regimes to make the port more efficient and cost effective and thus improve competitiveness while reducing the fiscal burden of the public sector.

Competition is the principal motivating force behind labor reform. In cases where ports serving the same hinterland already face competition, the propensity to undertake reform is usually higher (see Box 3). Regardless of whether there is direct port or terminal competition, global competition in its broadest sense compels port stakeholders, including labor, to assess their organizational and operational cost structures, work methods, and procedures. From this perspective, ports may be viewed as just one of several factors that contribute to a country's or a region's competitiveness. As such, it is in a country's overall economic interests to improve port efficiency through labor reform and other measures.

The port and trade community, which includes manufacturers, exporters, importers, and land and ocean carriers, because of its close business relationship with the port, can sometimes press

Box 2: Trends in Gang Strength, 1970s and 1980s

Port	Date	Gang Strength	Date	Gang Strength	Change
Aruba	1979	21	1983	12	-9
Auckland	1971	14	1982	14	Nil
Bahrain	1970	15	1982	10	-5
Beirut	1974	50	1983	15	-35
Bombay	1970	Ashore 13 In hold 8	1980	Ashore 13 In hold 8	Nil Nil
Chittagong	1970	14	1982	14	Nil
Cochin	1973/74	Ashore 8-18 On board 10	1982/83	Ashore 12 On board 10	(average)
Doula	1970	14	1982	14	Nil
Freetown	1976	14	1983	14	Nil
Gothenburg	1976	9-13	1983	8-13	Nil
Guam	1970	14	1983	9	-5
Lagos	1970	16	1982	16	Nil
Madras	1970	24	1980	27	+3
Melbourne	1970	10-21	1983	10-21	Nil
Montreal	1970	3-14	1982	3-14	Nil
Oslo	1970	10	1982	"as required"	-
Panama	1971	18	1982	18	Nil
Pinang	1970	9	1982	9	Nil
Port-au-Prince	1977	8	1982	12	+4
Puerto Rico	1970	22	1982	22	Nil
Rangoon	1972	26-30	1982	15	-(11-15)
Recife	1970	4-15	1983	4-16	+1
Rotterdam ¹	1970	6-14	1981	6-14	Nil
Tai-chung	1970	4-20	1982	4-20	Nil
Shuwakh	1980	12	1982	12	Nil
Singapore	1970	15	1982	10	-5
Turkey (all ports)	1970	11-13	1982	7-9	-4
A (Sweden)	1970	11	1982	9	-2
B (Norway)	1979	7-9	1982	5-7	-2
I (North Africa)	1971	17	1981	17	Nil
J (Australia)	1970	11-15	1982	6-15	-3
E (Taiwan, China)	1970	22	1982	12	-10

Source: Couper, A. D. 1986. New Cargo Handling Techniques: Implications for Port Employment and Skills. ILO.

governments to modify restrictive labor regulations that govern work practices in ports.

Transforming these requirements into effective modernization plans may depend on other factors, but presenting a common voice can consti-

tute an important force to initiate the labor reform process.

Finally, political commitment is essential to initiate labor reform. Without strong support

Box 3: Labor Competition in India and Brazil

In 2000, Western India's main container port, Jawaharlal Nehru Port (JNP), located within Mumbai Bay, used gangs of 4 workers for container handling while the Port of Mumbai used gangs of 15 workers to perform the same task, putting more pressure on the latter to undertake labor reform sooner than the Eastern Indian port of Calcutta, which used gangs of 28 workers and had no competing port in the vicinity at that time.

Likewise, competition arising due to the proximity of the Port of Sepetiba to the Port of Rio de Janeiro, Brazil, has encouraged the latter to negotiate more flexible labor arrangements and tariffs than the Brazilian Port of Santos, which at the time had no nearby competing port (now the container terminals have been privatized and multiple competing terminals exist in the same port).

Source: Author.

and reassurance from government decision makers for labor reform, the chances for reform to succeed are slim. Similarly, promises from aspiring political leaders could fall short after an election is won. Moreover, the need to reduce government subsidies or the desire to obtain a one off cash injection by tendering concessions, have in the recent past been common incentives for reform and port labor reform.

Box 4: Factors Prompting Port Labor Reform

Source: Author.

While a port labor reform process may be instigated by either competition, community pressure, or political push, the most favorable condition occurs when all three forces are present simultaneously (the shaded area in Box 4).

Box 5 describes the efforts of port labor reform in the European Union.

2. KEY LABOR ISSUES

In numerous developing countries, as well as in some industrialized ones, existing port labor regimes, collective agreements, and management and labor practices are inflexible, outdated, and inefficient. Consequently, they hinder the development of the commercial and operating environments that ports require to respond to the increasing demands of customers and competitive markets. Governments, as a result, must appraise, in consultation with other port stakeholders, the extent to which labor regimes, collective agreements, and labor and management practices serve as a barrier to the achievement of the port's commercial goals.

In conducting this appraisal, many issues have to be addressed, including, but not limited to:

- Restrictions on which entities can offer cargo handling and other services in the port.
- Reducing overstaffing by adapting gang sizes and other staffing to generally accepted levels.
- Rigid and outdated job descriptions and duties.
- Limitations on working hours and days.
- Inefficient overtime allocation at excessive wage rates.
- Hiring of port labor exclusively through the unions.
- Restrictions on output.
- Unsettled and combative workplace culture.
- Insufficient training and retraining opportunities.

Box 5: Port Labor Reform in the European Union

The European Commission attempted numerous times (2001, 2003, and early 2006) to adopt a proposed directive on market access to port services. The aim was to establish clear rules and to set up an open and transparent procedure for access to port services. The proposal sought to reinforce quality service in ports with a strong focus on port labor and concession terms. Port labor, however, supported by several industry stakeholders, fought strongly against the proposals, which included dock worker strikes in Germany, the Netherlands, Portugal, and France.

The key objective of the commission's initiative, namely to increase port efficiency, would also allow a port service provider to employ personnel of its own choice. Self-handling would be allowed and self-handlers would be treated neither more nor less favorably than other providers of a comparable service. Self-handling is when a port user provides for itself one or more categories of port services, for example when ferry operators carry

out their own loading operations. Services include cargo handling, towage, mooring, pilotage, and passenger services and represent a major part of total costs of port calls for ships and of cargo transported through ports. There are, in the opinion of the commission, no reasons why self-handling should not, in principle, be allowed if operators believe that such action provides better use of their resources and increases efficiency.

Many port stakeholders (port unions, operators, and shipping lines) felt that this type of liberalization would not only undermine the position of the regular port workers, but would also open the door for inexperienced, poorly trained, and underpaid port workers on an on call basis, giving rise to the emergence of malafide employers who would diminish the quality of port services.

The most recent proposal in January 2006 was rejected by the commission on a vote of 532 to 120.

Source: Author.

- Lack of clear and meaningful productivity objectives.
- Inadequate occupational health and safety procedures.

Some port reformers have opened labor markets to competition as an approach to address these issues. In this context, the existence of inflexible and exclusive dock labor boards or union labor pools runs counter to the desire to increase management discretion over the recruitment, qualification, and use of specific employees.

Many government-owned and operated ports face not just one of these issues, but a combination of them. And solving these issues is critical to any successful port reform strategy. Simply shifting the burden of these issues from a public authority to the private sector, however, will do little or nothing to resolve them. Box 6 shows how certain port reforms can affect employment conditions and labor management relations.

3. LABOR INVOLVEMENT IN PORT REFORM

A realistic and responsible port reform initiative must recognize and deal with the possible

adverse human and social effects that may result from implementation. To ensure that dock workers' rights and interests are properly taken into account, the International Transport Workers' Federation (ITF) recommends that policy makers should involve labor at all stages of port reform.

The principal areas of interest for port labor include, but are not limited to:

- Stable and fulfilling employment.
- Reasonable incomes.
- Decent working conditions.
- Social security and pension provision.
- Education and vocational training.
- Health, safety, and the environment.
- Workplace democracy.
- Freedom from discrimination on the basis of race, religion, social status, or gender.
- Freedom from corruption and coercion.

Historically, trade unions have worked to advocate these interests. And trade unions can be

Box 6: Possible Effects of Reform on Employment

Employment effects	Employment conditions	Management labor relations
<ul style="list-style-type: none"> • Reclassification of posts. • New job patterns. • Labor retrenchment and direct job losses. • Gender-based employment policies. • Discrimination against shop stewards and other labor representatives. • Medium- and long-term employment gains due to increased investment, growth, privatized firms, and diversification of services. 	<ul style="list-style-type: none"> • Greater job mobility. • Diminished guarantee of tenure and job security. • Need for retraining and skill upgrading. • Longer working hours and/or increased work load. • Payment by results schemes and pay freezes. • Loss of seniority and service grades. • Wider wage differentials with greater incentive components. • Loss of pension rights. • Loss of social benefits (for example, housing, transport, child care, and health insurance schemes). • Abolition of ban on undertaking strikes and industrial actions. 	<ul style="list-style-type: none"> • Greater emphasis on professionalism. • More discretionary power in making management decisions and formulating enterprise policies. • More emphasis on strict implementation of these decisions and policies. • Marginalization of unions' influence and bargaining power. • More tedious wage bargaining with preferences for individual rather than collective agreements. • Tougher stance of management on workers performance and work discipline. • Efficiency arguments and profit-making gain importance over social objectives.

Source: UNCTAD. 1995. Comparative Experiences with Privatization: Policy Insights and Lessons Learned.

expected to continue to play an important role in the port community during and after the period of reform implementation. Government authorities, when undertaking reform, must recognize this legitimate and important role and should not view port reform predominantly as an opportunity to break trade unions or otherwise undermine their role in protecting workers' interests.

Despite the critical role that labor plays in ports, many countries have designed and implemented port reform adjustment programs without the involvement of workers' representatives and unions.

Failure of governments to secure constructive labor involvement in port reforms can typically be traced to:

- Mistrust stemming from historic disputes and the recurring conflicts over capital-labor tradeoffs.
- Inadequate and untimely preparation of port reform proposals, making it difficult for labor to take part in consultations and negotiations.
- Financial resources that are too limited to cover training needs created by port reform.

Governments, however, have much to gain from involving labor early and effectively in the port reform process. Port labor is one of the most valuable assets of the port community. This pool of trained personnel is a deep source of practical knowledge with vast experience in port operations. This source can be tapped to contribute problem-solving expertise and innovation to add value to the goods and services of customers.

On the other hand, labor unions themselves must face a number of crucial challenges to adjust and optimize their own effectiveness when dealing with reform. As listed by a former ITF official, the main challenges include:

- *Union participation.* The participation of trade unions in the reform process is a big challenge because it requires a commitment from trade union leaders. Negotiation implies compromise and this may not always be to the liking of all affected trade union members. Union leaders must accept that once they have negotiated the best deal possible, it is their responsibility to defend it strongly to their members.
- *Unification of workers' short- and long-term interests.* The issues confronting labor during the transition period to reform versus the period following the introduction of reform are different. In the transition period, the challenge for trade unions is primarily to defend the short-term interests of workers. At the same time, trade unions have to look to the future and to defend the workers' long-term interests. This means that they have to understand longer term trends affecting the port industry and to be able to develop appropriate policy and a strategy for the future.
- *Increase expertise within the union.* Participating actively and effectively in a reform process requires trade unions to become thoroughly knowledgeable about shipping, ports, and international trade,

and to commit significant human resources to the reform process. In addition, trade union structure must allow for the internal exchange of information and debate. In some cases this expertise needs to be developed, as it has been within those unions more experienced in reform processes. There are several ways to develop this expertise within a union, including training.

- *Introduction of new trade union structures.* One obstacle to successful port reform could lie in outdated union structures that divide workers into many small, different unions, that sometimes compete among themselves for membership. Efficient trade union structures, covering the whole industry, should be created to enable union officials to exchange information within the union, to organize the necessary internal debate, and to present a consistent approach in their dialogue with public authorities.
- *Finding solutions to social problems caused by reforms.* The main source of port workers' opposition to reform is uncertainty. Faced with the fear of unemployment or major cuts in income, labor's first reaction is always to say no. Unless workers can be given an interest in the results of the reform, they will resist any change. Employment and income guarantees for port workers affected by reform are, therefore, essential in creating the climate required for successful and lasting port reforms. The costs of severance pay, unemployment benefits, pensions, cash payments for early retirement, or other measures must be considered a legitimate part of the overall cost of reform. The challenge for the trade unions, which comes prior to solving social problems, is to develop their own policy on those issues and to reach common ground with public authorities and private employers.
- *Reform acceptance.* Unions increasingly recognize the need for a differentiation of

their policies on reforms and reform. Resolutions adopted at ITF's Latin American and Caribbean and African Regional Dockers' Conferences in Lima (November 1996) and Mombasa (December 1996) indicated for the first time that unions acknowledged that there is no standard model for port restructuring and that increased involvement of the private sector is an option that cannot be discarded. The basis for this changing attitude toward reform was the increased awareness that it is not reform that threatens working conditions, but the process through which it is implemented.

- *New culture of competition.* A major consequence of reform is an increase in competition. This usually calls for new flexibility in working practices. There are many forms of flexibility, and trade unions should understand this aspect of reform and competition thoroughly to again find a balance between what is presented as necessary and what is recognized as socially acceptable.
- *Understanding the need for new labor relations.* Reform brings with it a complete realignment of labor relations. In the case of state-owned ports and related companies, the relationship is between only two parties: government and labor. Reform means that a third party is introduced: the private entrepreneur or employer. For many trade union officials this change requires a complete overhaul of the way they used to think about labor relations. Moreover, it also requires from managers a completely different attitude and approach. Trade unions, employers, and would-be entrepreneurs can no longer rely on governments or other authorities when decisions need to be made. In many instances, entrepreneurs have to make their own decisions, in some cases in consultation with labor representatives and in some cases in consultation with authorities. Authorities

must learn that the state, on many occasions, should no longer take the lead, but should provide an environment in which entrepreneurs are encouraged to make their own decisions and in which trade unions and employers are encouraged to develop joint approaches to addressing labor issues. Box 7 describes Ghana's approach for addressing a number of these challenges.

Box 8 presents an example of the reference to the port labor clauses in a concession agreement.

4. ORGANIZING TO ADDRESS LABOR REFORM: A TASK FORCE APPROACH

Successful port labor reform requires governments, labor, and private interests to grapple with a wide range of economic, operational, social, safety, and cultural issues. To come to grips with these myriad issues, some governments have established a labor reform task force, often headed by the ministry of labor, to consult with port stakeholders regarding any changes that might be made in government policies and practices to improve port productivity and cost effectiveness.

The labor reform task force should include representatives of all government agencies and private sector stakeholders affected by port reform, including:

- Ministries of transport, labor, finance, economics, and planning.
- Port authorities.
- Port labor representatives.
- Main port customers and users, including exporters, importers, carriers and agents, freight forwarders, and multimodal transport operators.
- Private investors, terminal operators, and cargo handling and stevedoring companies.

The labor reform task force should conduct its activities in an open and transparent manner.

Box 7: Working with Labor Unions: The Ghana Case

As a strategic option to achieve its development objectives, the government of Ghana designed in 1998 the Ghana Trade and Investment Gateway Project (GHATIG) with the support of the World Bank. The primary objective of GHATIG is to create an environment conducive to economic growth and development led by private sector initiatives.

Within this context, the government of Ghana has approved a policy to further improve the operation of the ports, which will reduce the cost of operations and shorten the turnaround time of ships. The policy entails increased private sector participation in the management of ports. The Ghana Ports and Harbours Authority (GPHA) will be converted into a “landlord” port authority while the private sector will participate in port operations, particularly container handling operations, dockyards, and sites’ maintenance and services.

The port reforms that are sought through the implementation of the GHATIG Project constitute a major change in the port sector of Ghana. The most critical issue in managing change (that is, making change work) is overcoming the resistance to change in many of the stakeholders in the port industry. However, in the case of the proposed port reforms in Ghana, due to the proper, professional, and timely and proactive actions of the government (particularly the initiatives of the Minister of

Roads and Transport) and the GPHA management, the strength of the resistance to change has been minimized. The avoidance of any autocratic approach and the consultative, persuasive, and participative style that has been adopted by the government in promoting the port reform process has resulted in a very positive atmosphere among the port community for the implementation of the port component of the GHATIG Project. The public consultation through a national workshop on the acceptability of the government’s policies pertinent to port reforms and the personal site visits of the Minister of Road and Transport to the ports to speak, and more importantly listen, to the port workforce and the port labor unions, coupled with the constructive work that has been undertaken by the GPHA management, has secured the collaboration of the majority of the stakeholders in the port sector. It is interesting to note that representatives of the Maritime and Port Workers Union (MDU) have joined forces with the GPHA management in its effort to address the port rationalization issues in relation to the port reform process. MDU representatives are now members of the organizational restructuring and labor rationalization working team of the GHATIG Project Implementation Committee and attend its meetings on a regular basis.

Source: Author.

Its main areas of activity should typically include:

- *Commissioning or conducting studies:* Many governments prefer to be assisted and guided by expert professionals, retaining consultancy services to work closely with management, workers, and other port stakeholders in assessing the weaknesses and strengths of labor regimes, collective agreements, and work practices.
- *Organizing seminars and workshops:* These help to build consensus by allowing all port stakeholders to share their views and concerns on various issues. These events also permit employers to explain to workers what sort of competition they face, their firms’ financial
- performance, and the need to address competitive challenges.
- *Informing the community and consumers:* Using the media to disseminate the results of studies and workshops helps to keep the community and consumers at large informed, making it easier to gain their support for necessary changes. The community and consumers need to be enlightened as to why port labor reform is needed, what is involved, how the main difficulties will be mitigated, and what the expected benefits are to the entire economy or country.
- *Fostering the creation of joint committees:* Such joint committees between unions and private terminal operators

Box 8: Sample Reference Clauses in a Concession Agreement on Employee Transfer

1. The Operator shall employ the employees engaged in container handling operations in whatever way who desire to work for the Operator on terms and conditions that are overall not less than those such employees were drawing at the time of their termination as employees of the [name] Ports Authority. To this purpose the Operator shall source not less than [number] employees employed by the [name] Ports Authority with the required skills:
 - (a) Initially from staff working on the [name] Container Terminal; if unable to source the total number required, then
 - (b) From staff working at other locations of the [name] Ports Authority, employed in the port of [name]; and if there still is a shortfall of the total number required and the Government is satisfied that the Operator is unable to obtain the required number of employees from the [name] Ports Authority, employed in the port of [name], then
 - (c) The Operator may source its employees from outside the [name] Ports Authority.
2. The Operator shall undertake such consultation with employees and employees' representatives as the Operator in its discretion deems fit. In so doing, the Operator shall have due regard to and observe:
 - (a) Any applicable law.
 - (b) Any other agreements relating to the employees or employees' representatives concerned.
 - (c) The relevant contracts of employment of said employees.
 - (d) All relevant consultation provisions and obligations concerning the said employees or employees' representatives.
3. Subject to applicable law, the Government shall transfer to the Operator such employment records relating to those former employees of the Government who are employed by the Operator upon hand-over as the Operator shall reasonably require.

Source: Author.

might address issues affecting operating efficiency and safety and can help resolve on-the-dock problems and disputes without formal government intervention.

- *Defining government's role regarding ports:* Governments should play an active and focused role in regulating and monitoring companies that operate in the port system to ensure that safety and health laws and regulations are followed. Governments can assume an active and effective role in promoting the use of ports for the benefit of the entire community and economy.
- *Developing a workforce rationalization plan:* The task force should draw up and explain programs for staff restructuring and rationalization. In developing these programs, the task force should evaluate a range of measures including incentive schemes for early retirement, voluntary separation, provision of training and retraining, and career development as well as assistance in job search and outplacement.

For the task force to be in a position to work effectively, sufficient budget must be allocated by all participants' organizations to make it possible for the team to complete its tasks and work schedule. Box 9 describes Australia's approach to creating a port reform task force (Box 10 provides the productivity research conducted by Australia's port reform task force).

5. THE INSTITUTIONAL FRAMEWORK FOR LABOR REFORM

Port labor reform is a balancing act that must consider workers' rights and social equity, port users' and operators' commercial needs, the need to foster competition, and the interaction between governments and port interests.

5.1. Redefining the Concept of Social Equity

The current concept of social equity (that is, job and wage security) was developed at a time when governments believed they could insulate

Box 9: The Productivity Commission of Australia

The Productivity Commission, an independent commonwealth agency, is the government's principal review and advisory body on microeconomic policy and regulation. It conducts public inquiries and research into a broad range of economic and social issues affecting the welfare of Australians.

The commission's work covers all sectors of the economy. It extends to the public and private sectors and focuses on areas of commonwealth as well as state and territory responsibility.

The commission performs its role through the following key activities: holding public inquiries and reporting on a variety of matters brought to the commission's attention; initiating research on industry and productivity issues; reporting annually on industry and productivity performance generally; assistance and regulation promoting public understanding of matters related to industry and productivity; providing secretariat and research services to government bodies, including developing performance indicators for government provided or sponsored services; reviewing and advising on regulation through the Office of Regulation Review; and investigating and reporting on complaints about the implementation of the commonwealth government's competitive neutrality arrangements.

Source: Author.

their economies from the rigors of fierce international competition. Developing countries, in particular, often pursued policies designed to reserve domestic markets for national entrepreneurs while seeking to create broader export markets through the receipt of preferential treatment under multilateral trade agreements. In this environment, dock workers (and other labor) were sheltered from the full force and effect of international competition, or so it may have seemed.

Similarly, governments were temporarily spared having to make difficult decisions associated with adjusting labor conditions and relation-

ships to conform to global market forces.

Governments, therefore, guaranteed dock workers' jobs, purchasing power, and benefits. At the same time, they were often reluctant to make investments in new technology or to take steps to reduce costs and improve productivity. The unfortunate truth is that this interpretation of social equity raised the costs and prices of imported and domestic products in national markets and contributed to a downward spiral of noncompetitiveness. As such, this concept of social equity was unsustainable.

The concept of social equity today has shifted to a commercial opportunity-oriented approach. Under this approach, job security, which ultimately depends on expansion of trade and transport activities, is not achieved through government guarantees of work, but through education, training, and retraining programs. By this means, the enhancement of workforce skills and abilities, together with greater participation in workplace decisions, lead to better job opportunities and improved productivity. Box 11 compares past and present aspects of job security.

For workers displaced as a result of reforms, fair compensation should be granted for the relinquishment of their acquired rights and privileges. To facilitate their early reentry into the national workforce, displaced workers should be offered retraining programs and job search assistance, and above all, an institutional structure that ensures that benefits and privileges given up by these workers will not be appropriated by some other group within the port or trade community. Labor's possible role in this area would be to ensure that training programs become an integral component of the modernization process, promote occupational health and safety, and establish a collaborative process for the selection and introduction of new equipment.

5.2. Meeting Commercial Needs

Establishing interport, intraport, interunion, intraunion, and nonunion competition is key to addressing shipping and port companies' needs for improved productivity and cost effectiveness.

Box 10: Institutional Framework for Labor Reform Key Findings

Productivity Commission 1998, Work Arrangement in Container Stevedoring, Research Report, AusInfo, Canberra, Australia

- Flexibility in the allocation and use of labor is critical to stevedore workplace performance given the highly variable demand for stevedoring services at Australian ports.
- The container stevedoring industry is characterized by a system of complex, inflexible, and prescriptive work arrangements that constrain workplace performance. They impede productivity, reduce timeliness and reliability, and increase labor costs.
- The most significant work arrangements are the order of engagement (specifying the order in which different types of employees are engaged for a shift), shift premiums and penalty rates, and redundancy provisions.
- The order of engagement, in combination with relatively high shift premiums and penalty rates, add significantly to total labor costs for a given level of activity. They detract from productivity by creating incentives for permanent operational employees to seek overtime and lead to poor timeliness and reliability. They can also have deleterious effects on the lives of operational employees.

- The high cost of redundancies restricts the ability of stevedores to adjust manning levels of permanent employees. The redundancy agreements also foster skill mismatches and reduce the ability of management to allocate the best person for the job.
- There are a number of factors that impede change, including an adversarial workplace culture, strong union bargaining power, limited competition in the labor market for operational stevedoring employees, and limitations on competition in the industry.
- The Workplace Relations Act of 1996 facilitates change by enabling work arrangements to be determined primarily at the workplace level. Together with the secondary boycott revisions to the Trade Practices Act, it has also reduced some sources of union bargaining power.
- Responsibility for better outcomes ultimately rests with managers and their employees. Greater competition in container stevedoring would increase the pressures on both sides to change work arrangements and improve performance.

Source: Productivity Commission. 1998. Work Arrangement in Container Stevedoring, Research Report, AusInfo, Canberra, Australia.

Creating this competition usually requires economic regulatory reform, including the elimination of bureaucratic obstacles to the free interplay of market mechanisms affecting the supply and demand of dock workers and decentralization, including the assurance that labor responds to local market signals without cross-subsidies among related labor organizations in competing ports.

Labor's possible role in this area would be to negotiate with port employers to establish job education and experience requirements and provide training courses that address local market needs.

5.3. Fostering Competition

Antimonopoly laws must be applied to terminal operators and dock labor alike to ensure that market mechanisms do not result in the creation

of cartels. Labor's possible role in competition should be to ensure that market mechanisms are used to compete fairly and that port operators do not abuse their market power.

5.4. Government's Role

To avoid pressures to modify market outcomes, governments should remove themselves from direct involvement in port labor relations, collective negotiations, and informal dispute resolution. A proper commercial setting should be able to function without political influence, although the government has a major role to play in labor rationalization and its funding.

Labor's possible role in this area would be to negotiate on a transparent basis without political manipulation; suggest measures to improve productivity, facilitate work, and reduce costs; and share decision authority at the operational level.

Box 11: Job Security in Ports**In the past**

Job security was obtained through political alliances and the avoidance of market mechanisms. The results were often not those desired and also included a de-emphasis of the need for:

- Knowledge of and experience with international port practices.
- Labor participation in management committees.
- Acceptance of new cargo-handling technology.
- Training programs to increase the skills of the labor force.

In the future

Job security obtained by responding to market mechanisms. This creates a need for formal training programs, multi-skilling, willingness to accept new technologies, and commonality of goals among port customers, employers, and dock labor. The usual impact is:

- Collective agreements negotiated to promote trade.
- Dock labor generates ideas that lead to progressive gains in productivity and efficiency.
- Employers willing to train port workers.

Source: Author.

5.5. Time Frame for Port Labor Reform

Port labor reform is an economically and politically challenging process. As such, it can be expected to elicit strong political emotions both for and against. Consequently, the port labor reform process should be begun and completed within the term of a single public administration. The reason for this is that the changes to existing labor regimes that are considered “objective” by one administration could be judged to be “biased” by succeeding administrations. Trying to carry over this reform process from one administration to the next often results in significant delays or even the discontinuation of the entire reform process.

Further, if port reform includes inviting potential investors to operate state-owned port facilities, it would be advantageous to conclude the labor reform component before the project is marketed and a request for bids is tendered. This will clarify the potential investors’ future labor relations and costs,

thereby reducing the degree of uncertainty and risk and, with the right labor reforms, making the offering more attractive to reputable investors and operators.

Nevertheless, one can expect that labor reform will be a continuing process that will involve adjustments to respond to changing market conditions.

6. DEVELOPING THE WORKFORCE RATIONALIZATION PLAN

An effective workforce rationalization plan must be built on accurate and relevant information and must consider the full range of rationalization alternatives, not just dismissals.

The design of a port labor rationalization plan and program is one of the most important phases of the overall port reform process. To be designed correctly, the plan and associated programs should be based on detailed, reliable information on the port enterprise, the workforce, and local markets. In this respect, it is

useful to review the lessons learned from previous government labor rationalization programs.

Before developing a rationalization plan, the labor reform task force should assemble the following information:

- Port master plans and strategic goals for the short, medium, and long terms.
- Estimates of required activity levels (throughput forecasts).
- Demographic information about the current port workforce, including data on employee age, marital status, number of dependents, level of education, length of service, and accumulated benefits (for example, employer's pension fund contributions, life insurance benefits, and accumulated holidays).
- Current staffing levels by operational, administrative, and management categories, and descriptions of job requirements.
- Estimates of minimum staffing levels by operational, administrative, and management categories, and descriptions of new or modified job requirements.
- National and local laws, regulations, and policies relating to labor rationalization.
- All relevant collective bargaining and employment agreements that describe work rules, compensation, benefits, training, contracting out rules, exclusive staffing provisions, and so forth.
- Training needs and skills of workers who will be seeking alternative employment.
- Existing government and private sector organizations capable of assisting with retraining and job searches, and their capacity to provide training at the required levels.

In developing a realistic labor rationalization plan, appraising the local labor market situation and conditions will be as important as assessing the specific enterprise being restructured.

Displaced workers will need to be reintegrated into local and regional markets. To facilitate their reentry, the labor reform task force will have to gather information about and carefully consider the following factors:

- The overall macroeconomic situation of the country and, more specifically, the economic and social condition of the area or region in which the port is located.
- Existing employment and unemployment patterns, job creation schemes, and the growth of sectors within regions.
- The labor absorption capacity and growth potential of different sectors of the economy.
- The skills and experience of the workforce.

This information should be available to all parties affected by port reform because it will become the basis on which many decisions will be made.

6.1. Alternatives to Dismissals

Too often, labor rationalization has been equated to wholesale dismissals. Labor forces can be rationalized in a number of ways, however, and the immediate dismissal of employees is not always necessary. In a climate of cooperation and mutual respect, labor and management have been able to implement agreements involving flexible work arrangements that preserve jobs or reduce the workforce through means other than involuntary dismissals. Some of these arrangements and measures include:

- Normal attrition of the workforce as a result of retirements, deaths, or resignations.
- Part-time employment, flexible working hours, reduction in working hours, variable work weeks, job sharing, and overtime restrictions.
- General or job category-specific hiring freezes.

- Absorbing cost reductions across the organization by sharing reductions in hours of work and pay.
- Work rotation among other government departments in cases where the port is the main employer of the city and jobs in the surrounding areas are very scarce.

Each of these alternatives merits careful consideration in the development of a labor rationalization plan. Box 12 describes one company's approach to labor rationalization.

6.2. Elements of a Staff Retrenchment Program

Measures such as the flexible work arrangements described above may prove insufficient to attain workforce reductions needed to make the port enterprise commercially feasible or attrac-

tive to new investors. In such cases, policy makers have to adopt other measures. A staff retrenchment program is an option that permits governments to reduce large numbers of workers in an operationally rational and socially responsible manner. To be viable, this kind of solution should be the result of negotiations with trade unions or workforce representatives. Such programs typically include various measures aimed at cushioning the adverse affects workers may suffer as a result of dislocations.

The main components of a staff retrenchment program normally include:

- Compensation, with incentives for early retirement and voluntary separation. Retrenchment programs often permit employees to retire with either full or reduced pension benefits at an earlier age

Box 12: Social Plans at Moulinex

Social plans can be described as agreements reached between labor and management to develop an organized set of measures seeking alternatives to dismissal, assistance in arranging reemployment elsewhere, and compensation in an effort to limit the number of planned redundancies and minimize the impact on workers and communities. The social planning process typically begins after an organization has announced that it intends to scale back the size of its workforce or even shut down operations entirely.

Following such an announcement, the social partners meet to find workable alternatives to mass redundancies. These alternatives tend to involve such initiatives as early retirement schemes, incentives for voluntary redundancies, natural attrition, conversion from full-time to part-time status, reduction in working hours, wage moderation or cuts in compensation, relocation to another work site within the organization, and worker retraining. If redundancies cannot be avoided, the social plans address such matters as an orderly process for layoffs, redundancy payments, job counseling, job search assistance, and training for new and expanding occupations. In France, for example, companies employing more than 50 workers are legally required to

draw up a social plan to limit the number of redundancies. Moulinex announced its intentions in June 1996 to make 2,100 workers redundant over three years, close two sites in Normandy, and transfer the head office west of Paris. It then signed an agreement with its five trade unions in January 1997, which reduced the number of planned job cuts from 2,100 to 1,468 through a combination of reductions in working time and early retirement. Working time will be reduced by 15 percent for 750 workers, from 39 hours to 33 hours and 15 minutes per week, paid at 97.2 percent of the base salary and organized on a voluntary basis. Early retirement will be offered to 718 employees from age 56. To prevent the loss of 600 more jobs, Moulinex will offer a relocation package of 12,195 to encourage workers to move to other locations within the company. The primary objectives of social plans such as that concluded at Moulinex are to maintain employment levels wherever possible, reduce disruption, and facilitate reemployment when layoffs are unavoidable.

Source: ILO. 1998. "The ILO's Response to the Financial Crisis in East and South-East Asia." Technical paper for the ILO's High Level Tripartite Meeting on Social Responses to the Financial Crisis in East and South East Asian Countries, Bangkok, Thailand, April 22–24, 1998.

than normal. Numerous public enterprises have either reduced the minimum retirement age by five years or added five years to length of service. Financial incentives are normally calculated based on the number of years of service, each year of service entitling the separated employee to one month's salary, with a ceiling of possibly 24 months of wages.

- Compensation for involuntary separation. When the targeted workforce reduction is not reached through voluntary programs, and workers have to be dismissed or laid off, they normally receive a lower severance payment, for example, 80 percent of the amount received by workers who left voluntarily. Dismissed workers are also entitled to training and outplacement assistance. Criteria to decide who should be dismissed could be based on: workers' records of attendance; frequency of penalties or suspensions; overall performance evaluations by immediate supervisors; and family situation (for example, marital status or number of dependents). In some countries, the standard is still "first in last out" when making redundancy decisions.
- Provision of training and retraining. The training and retraining component of the retrenchment program is aimed at facilitating the return of displaced workers to gainful employment. Experiences in various countries, however, have revealed that in many cases only 20 percent of the displaced workers take advantage of the retraining programs being offered. The main reasons for this low level of participation include timing delays, weak institutional capacity of the local public sector, and low educational level. To have a greater chance of success, retraining programs should be demand driven, not supply driven.
- Guidance and assistance in job searching and outplacement. This component is closely linked to retraining and is aimed

at assisting displaced personnel who will be seeking employment. However, displaced personnel should be able to take advantage of this service regardless of whether they have been retrained. Services could include resume assistance; providing information about employment opportunities; sharing information on how to start one's own business; establishing cooperatives; and other measures.

6.3. Pitfalls in Designing and Implementing Severance Packages

Retrenchment efforts involving significant staff reductions often face considerable political opposition. As noted above, to overcome opposition and to fairly treat public employees who lose their jobs, governments often offer severance pay to those workers forced to leave public employment. But problems in the design and implementation of these compensation schemes often reduce their efficiency and may not achieve their objectives.

Potential problems include:

- *Paying too much.* Workers are paid more than would have been necessary to induce them to leave. These increased costs may bring a retrenchment program to a halt because funds run out.
- *Adverse selection.* Severance pay packages do a poor job at targeting redundant workers; often the best workers tend to accept the buyout because they have readily available alternatives, while the worst tend to remain.
- *The revolving door.* Workers accept severance pay but are later rehired when it is determined that their skills are needed. As a result, the severance package is wasted and downsizing is not achieved.

How do ports accurately measure the portion of the labor force that is excessive? Typically, a government- or state-owned enterprise, allowed to restructure on its own, may cut more workers than is socially optimal, particularly if the cost of downsizing is borne by another agency. When

wages are higher in the public sector than in the private sector, governments tend to overestimate redundancies. Cuts are also exaggerated when employment in a given government agency affects the earnings of those it does not employ; for instance, in communities where the government agency being reformed is the primary source of direct and indirect employment. However, agencies tend to underestimate the number of necessary redundancies when heavily subsidized by the general budget. Although each port's situation is unique, applying certain rules

of thumb can help ports and governments identify where they may be overstaffed or where their productivity significantly trails other ports. Box 13 identifies a number of these benchmarks.

From a financial point of view, shrinking bloated governments appears to be a very profitable undertaking, even when employees get substantial severance pay. Practice shows that if employees are given two to three years of salary to leave, for example, then in a mere two years the money spent is recovered through cost

Box 13: Port Staffing Benchmarks

Size of the port authority	Recommended staffing level
Small authority: a few million tons	About 50
Average port authority: 10–20 million tons	From 150 to 250
Large ports: example: 100–300 million tons	1,000
More generally, and indicative ration would be:	100,000 tons per staff per year, with large variations: small ports require more than this proportion, large ports gain from scale economies and require relatively less staff; general cargo requires more staffing than bulk traffic.
Type of cargo	Performance
Containers (including operational, administrative, and management staff) Source: Drewry Shipping Consultants, World Container Terminals 1997.	1,000 TEUs of staff per year (for a large array of yearly throughput, from 150,000 up to 600,000 TEUs). Comment: also here there are economies of scale 150,000 TEU = 150 people / 600,000 TEU = 500 people
Breakbulk Cargo Boxes on 2 ton pallets built in the hold (fruits, frozen goods, and so forth): Gang: 15 to 17 dockers (excluding transfer and storage crew, crane driver, maintenance staff)	40 tons per hour 2.5 tons/hour/docker
Prepalletized boxes, handled with cages: Gang: about 13, including transfer (excluding storage crew, crane driver, maintenance staff)	160 tons per hour 14 tons/hour/docker
Exotic wood in logs, handled with slings: Gang: 12 to 15 dockers (excluding transfer and storage crew, crane driver, maintenance staff)	80 tons per hour 6 tons/hour/docker
Exotic wood in logs, handled with hydraulic clamps: Gang: 10 dockers (excluding transfer and storage crew, crane driver, and maintenance staff)	140 tons per hour 14 tons/hour/docker

Source: Author.

savings and productivity improvements. However, research has found that governments must take care to avoid losing the best employees, so as not to have to rehire them later.

Ironically, severance packages often have the adverse effect of inducing the most productive people to leave. Quite often, the best public employees have to be rehired, an expensive way of getting back to “square one.” World Bank research has found substantial rehiring in about a quarter of the surveyed retrenchment programs. What, then, are the best mechanisms for shedding redundant public sector workers? If severance packages are offered to induce voluntary departures, how should they be designed to minimize the total cost? And are there ways to structure such packages to induce to least productive employees to depart while encouraging to most valuable employees to stay?

Too often, severance pay is offered indiscriminately, without an overall plan for continued operations. Some public sector employees take the package, others stay, and only later do governments know which personnel and skills remain. The sequence should be reversed, first identifying the services to be cut or transferred to the private sector; second, identifying the specific overstaffed jobs; and meanwhile enforcing work hours and attendance recordkeeping to chase away “ghost” workers. Only then should those specifically targeted to leave be offered a severance package.

Tailoring severance packages to observable characteristics, such as age, education, number of dependents and the like, may substantially reduce the costs of downsizing. Care must be taken, however, not to discriminate against particular categories of personnel in a manner contrary to human rights and labor law.

Usually, the packages involve a multiple of the separated worker’s current salary in the public sector, the multiple being related to seniority. But these packages tend to overcompensate the people who accept them. World Bank research estimates overcompensation in selected countries at about 20 percent.

To keep the best employees, the research findings suggest developing a menu of alternatives to the standard severance package. For instance, public employees could be given the following choices: (a) keep their jobs; (b) leave and get severance pay; or (c) keep their jobs, but with a higher salary and on a fixed term contract. This last option would help retain the more productive public employees who have good outside alternatives and are not afraid of losing their jobs. Without the third option, those employees would tend to take the severance pay and leave.

Box 14 depicts a decision tree that can help port reformers carefully think through the process of workforce rationalization.

6.4. Rationalizing the Workforce: When and By Whom?

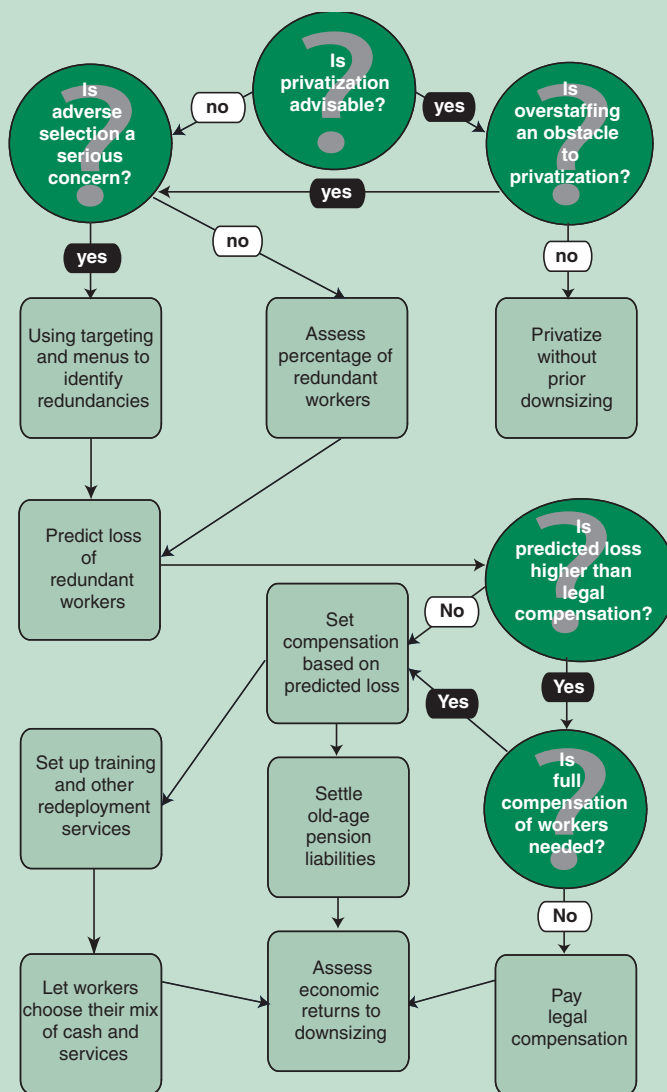
Workforce rationalization can take place at a number of points along the path to port reform and, depending on when it takes place, can be implemented by either the government or by the private sector. There are pros and cons to each of the various approaches.

6.4.1. Prereform Rationalization

Having the government initiate workforce rationalization prior to reforming other elements of port ownership and operation in most cases has several advantages:

- Presents potential concessionaires and investors with a “cleaner” business decision.
- Reduces uncertainty and certain risks associated with the project, permitting the government to get the best price for the concession.
- Places the expense of rationalization on the government, which in most cases is the entity that contributed most heavily to the overstaffing, rigid work rules, and other conditions that reduced efficiency.
- May result in less disruption to port operations as a result of work stoppages, sick outs, slow downs, and other actions.

Box 14: A Downsizing Decision Tree



Source: Rama, Martin. 1999. "Public Sector Downsizing: An Introduction." World Bank Economic Review, Vol. 13.

At the same time, having the government initiate workforce rationalization prior to reforming other elements of port ownership and operation can have drawbacks, including:

- Governments may cut too few from the workforce in response to political pressure, leaving potential concessionaires and investors with an oversupply of labor.

- Governments may not structure cutbacks, severance packages, and incentives to retain the best personnel and critical skills.

6.4.2. Postreform Rationalization

Delaying workforce rationalization until after other port reforms have been implemented also has strengths and drawbacks.

On the positive side, delaying workforce rationalization until after other port reforms have been implemented means that decisions in this area will be made by private sector concessionaires and investors who are efficiency minded and profit oriented. This, in turn, suggests that their decisions about workforce restructuring will be more attuned to operating needs and customer demands.

On the negative side, forcing the new concessionaires and investors to implement workforce reform can significantly increase the uncertainty and risk associated with the reform initiative. This, in turn, can scare away potential bidders and result in a lower concession or selling price for the government. In addition, port labor might be inclined to pursue work actions against a private employer more readily than against a government employer. Indeed, in some countries it is illegal for public employees to engage in work stoppages and other disruptive work actions.

In cases where overstaffing is not an issue and significant downsizing is not required, it is generally preferable for the new operator and investor to assume the task of rationalizing the workforce. This situation would be unlikely to occur in seaports, however, especially those in developing countries. Indeed, seaports have served for many years as natural shelters to avert unemployment and as a source of political patronage for various public administrations.

Thus, the question for policy makers is: What is the maximum number of workers the prospective concessionaire can be asked to employ without undermining the entire port reform initiative? If too many workers are imposed on the new concessionaire, the business proposition will be less attractive. As a result, few competing bids may be submitted and the sales price or the concession fee most probably will be significantly discounted.

A new terminal operator typically prefers to have the freedom to determine the firm's required number of staff and skill mix. The government will normally have an interest in the new terminal operator absorbing the highest

possible number of workers. In many instances a compromise is reached between the two, but the new terminal operator should be given the option to further adjust the workforce size and composition, which may lead to further dislocations postreform.

For example, in Argentina in 1991, concessionaires of the five terminals at Puerto Nuevo, Buenos Aires, were required to employ 1,350 workers from the public agencies previously operating at the port, or to negotiate an equivalent number of redundancy agreements. The number of workers assigned to each concessionaire was based on the business plan submitted in the bid. For example, 130 workers were assigned to Terminal Five, but most of them were offered and accepted severance packages only a few months after the new firm started operating. Out of the 218 workers assigned to Terminal Three, 119 of them were offered and accepted severance packages. Of the 900 workers assigned to Terminals One and Two, in May 1999, only 419 remained with the firm. Severance payments ranged from \$15,000–\$20,000 per worker.

The terminal operators at the Port of Buenos Aires preferred the compensated dismissal option to retaining an oversupply of workers. This was due in part to the distorting gaps in wages and length of vacation among workers performing the same tasks. Because of their longer length of service, former public sector workers were entitled to higher salaries and extended periods of vacation compared to new private sector hires. In addition, at an average age of 50 years, most of the transferred public sector workers were “worn out” as a result of having worked in the old port under difficult and, in some cases, hazardous working conditions.

6.5. Who Should Pay for the Expenses of Port Labor Rationalization?

The expenses associated with downsizing could amount to millions of dollars depending

on the number of workers, levels of set compensation, and safety net components such as training and outplacement assistance. Many countries have recognized the convenience of reducing the workforce prior to private sector participation in state-owned enterprises, but offsetting the expenses related to labor reduction has been a difficult task for many governments, especially in view of pressing budgetary constraints.

For the government of Mozambique, for example, the staff rationalization component, which included staff reductions of approximately 14,000, pension fund payments, staff redeployment, and social mitigation as part of the Mozambique Rail and Port Restructuring Project in 1999 was estimated to cost the government \$50 million. Compensation paid to workers laid off in Chilean ports as a result of the deregulation of dock labor in 1981 amounted to a total of \$30 million. Payments per worker averaged \$14,300 and ranged between \$10,000 and \$200,000. In 1991, the government of Colombia provided \$50 million to compensate 8,000 Colombian dock workers for the loss of acquired rights. The restructuring of Venezuelan ports in 1991 led to the layoff of 10,279 dock workers and 2,000 officials in the National Ports Institute. All received double compensation from the government of Venezuela, amounting to \$182 million overall, or \$14,822 per person.

When considering whether and how to pay such sums, governments have to contrast these expenditures with the broader long-term goals of port reform, which are to make ports more efficient and cost effective in support of the overall economy. Therefore governments, as former employers, and the private sector, as new employers, both have an important role to play in the financing of the expenses associated with port labor reductions. Actually, it could also be possible, in view of the benefits to be expected from a quick resolution of the issue, to ask port customers (shipping lines, for instance) to contribute to the modernization costs through a temporary levy on tariffs.

7. INTERNATIONAL SUPPORT FOR LABOR ADJUSTMENT

A number of programs and funding sources can be used to support port labor reform, several of which are described below.

Since 1990, the World Bank (Bank) has supported labor adjustment in reform and enterprise restructuring in about 50 operations around the world. The main elements of Bank support have included:

- Technical assistance for governments to help:
 - ~ Develop staff inventories and profiles.
 - ~ Identify staffing needs.
 - ~ Develop severance and retirement packages.
 - ~ Analyze labor market characteristics and needs.
 - ~ Redeploy workers through active labor market programs.
 - ~ Design employee share ownership schemes.
 - ~ Establish consultative mechanisms.
 - ~ Prepare communications programs.
- Direct financing for severance payments, provided that such financing results in improved productivity of the sector and related enterprises and that social mitigation measures are put in place. The first example of this type of support was the reform of Brazil Railways, where a Bank project financed half the costs of the severance program. For a list of other examples, see Annex 1.
- Poverty alleviation programs such as social funds to provide compensatory assistance, advice and training, placement services, and credit for self-employment. Such funds are typically targeted to the poor, but they have been used for state enterprise workers in cases of extreme economic distress or where large-scale

redundancies occur in concentrated areas (as in the case of mining in Bolivia and Peru).

Education and vocational training are vital to the change process. Training should include not only general education and broad industry-focused vocational training, but also specific job instruction, communication and social skills courses, and health, safety and environmental training. Sufficient and continuing funds are necessary to finance the education and training infrastructure. The need for lifelong training to enable workers to cope with the permanent changes taking place in the industry is recognized in the 1989 EU charter of Fundamental Social Rights of Workers, which states that: “...every worker of the European Community must be able to have access to vocational training and benefit there from throughout his or her working life.”

Moreover, good education and vocational training are increasingly recognized and used as an instrument to improve the quality of the products and services of businesses and thus enhance their competitiveness. Therefore, education and vocational training are in the best interest of the port community as a whole. Furthermore, a lack of education and training means a lack of opportunities to teach the workers the essence of transport economics and policies, the position of ports in the intermodal transport system and its dependency on the other modes of transport, and about the forces shaping the competitive environment.

The objective of the International Labor Office (ILO) Port Worker Development Program (PDP) is to enable governments and port authorities of developing countries to establish effective and systematic port worker training schemes. This training is designed to improve container handling performance, working conditions and practices, safety, and the status and welfare of port workers. See Annex II for a list of training centers or organizations that have acquired the PDP training materials and licenses.

The translation into Spanish of the PDP and the training of PDP instructors and coordinators was undertaken under a German Technical Cooperation Agency (GTZ) project in Latin America. Since 2000, the program is regularly implemented in several Latin American countries. PDP is also being translated into Chinese.

Outreach for training programs has also been improved through the establishment and strengthening of training centers, management training institutes, universities, and cooperation networks associated with the international TRAINMAR Program of UNCTAD (United Nations Conference on Trade and Development) in Central and South America and the Caribbean. This was achieved through the upgrading of local and regional training capabilities and the application of the systematic TRAINMAR methodology for the development and exchange of standard training materials as part of cooperation projects financed by UNDP (United Nations Development Programme), the European Commission, Germany, and France. Since 1988, the three TRAINMAR networks in Latin America and the Caribbean are regularly and successfully developing and delivering courses and management training programs directed at all categories of personnel from the port and transport industry.

Further information on the PDP may be obtained from: Chief, Maritime Industries Branch, Sectoral Activities Department, International Labor Office, 4 route des Morillons, CH-1211 Geneva 22, Switzerland, telephone (41.22) 799-7466, fax (41.22) 799-7050, e-mail: marit@ilo.org.

Further information on the TRAINMAR networks in South and Central America and on the implementation of the PDP in Latin America may be obtained from: ATAS (Asociación TRAINMAR de América del Sur—South American TRAINMAR Association) Montevideo, Uruguay. Web site: www.atas-trainmar.org.

8. POSTREFORM LABOR MANAGEMENT RELATIONS

Once port reform is implemented, port labor and management must continue to cooperate if reform is to achieve its objectives. The proposed changes in labor regimes, collective agreements, and work practices to improve productivity and curtail cost will stand a better chance of success if they are reached with the agreement of all stakeholders. For mutual gains, labor and management have to concentrate on building stronger relationships through better communication and more cooperation. In that respect, it appears appropriate to foster the establishment of joint committees between port workers and terminal operators to resolve operational problems and disputes without having to resort to official intervention.

Participation of port workers in workplace decisions has an enormous potential to motivate workers and to enhance customers' satisfaction. The combination of better communication and working toward agreed objectives can set the stage for improved labor management relations in ports that are undertaking reform. Successful labor reform can only be achieved when the commercial goals (efficiency and growth) of the

employers are balanced with the social goals (equity and fairness) of their employees.

REFERENCES

- AusInfo. 1998. "Work Arrangement in Container Stevedoring, Research Report." Productivity Commission, AusInfo, Canberra, Australia.
- Couper, A. D. 1986. "New Cargo Handling Techniques: Implications for Port Employment and Skills." ILO.
- ILO (International Labour Organization). 1998. "The ILO's Response to the Financial Crisis in East and South-East Asia." Technical paper for the ILO's High Level Tripartite Meeting on Social Responses to the Financial Crisis in East and South East Asia Countries, Bangkok, Thailand, April 22–24, 1998. Web site: <http://www.ilo.org/public/english/region/asro/bangkok/download/crisis/gb274.pdf>.
- Rama, Martin. 1999. "Public Sector Downsizing: An Introduction." World Bank.
- Economic Review, Vol. 13.
- UNCTAD (United Nations Conference on Trade and Development). 1995. "Comparative Experiences with Privatization: Policy Insights and Lessons Learned." UNCTAD: New York and Geneva. Web site: http://www.unescap.org/drrpad/publication/dp22_2122/chap5.PDF.

ANNEX I. WORLD BANK LABOR ADJUSTMENT PROJECTS

No.	Project Name and Number	Country	Approval Date	Intervention Type	Description and Components	Financing (total, by component and by institutions)	Evaluation (Yes— Report #/No)
ECA							
1.	Railways Restructuring Project (APL) No. 28049-TU	Turkey	06/09/2005	Adjustment schemes for retrenched workers; training for retrenched workers	<p>Improve the financial viability, productivity, and effectiveness of railways operations.</p> <p>Components: B/Staff adjustment and social plan finances implementation of the restructuring process and avoids social unrest through social mitigation program (severance payment and compensation incentives; retraining and redeployment; and support services); D/ Staff training and retraining supports the implementation of the training program in railway procedures review and design; operational performance monitoring; improved communication and negotiation skills within the TCDD; and labor regulation on safety and health.</p>	<p>Total: \$221 million (WB \$184.7 million); Component B: Total \$81.5 million (WB \$65.2 million); Component D: Total \$0.6 million (WB \$0.6 million)</p>	No
2.	Employment Promotion Project (LIL) No. 25657-YU	Serbia and Montenegro	04/30/2003	Adjustment schemes for retrenched workers; public works; labor market information and monitoring	<p>Seeks to improve the efficiency of labor programs by piloting and testing new approaches, innovative labor deployment programs, and employment services in selected areas.</p> <p>Components: 1/ Design of</p>	<p>Total: \$5.45 million (WB \$2.75 million; DFID \$1.75 million; Borrower \$0.95). Component 1:</p>	No

No.	Project Name and Number	Country	Approval Date	Intervention Type	Description and Components	Financing (total, by component and by institutions)	Evaluation (Yes—Report #/No)
3.	Social Support Project (SSP) No. 19432-MK	FYR Macedonia	06/16/1999	Adjustment schemes for retrenched workers; employment services; labor administration	<p>Labor Redeployment Activities: provide assistance through labor redeployment services, reintegrate displaced workers into the labor market & mitigate the social costs of enterprise restructuring; 2/ Piloting Reforms in Public Employment Services: Design, pilot, and evaluate cost-effective public employment services, to assist the unemployed reenter the labor market, through improved employment services, search assistance programs, and small business advisory services; 3/ Labor market information, and evaluation: Building local capacity to generate, analyze, and use the information for policy formulation, and program design;</p> <p>Aims to mitigate the negative social and economic impact of bankruptcy and labor restructuring of the majority state-owned enterprises (MSOEs), as well as, the emergency economic disruption due to the conflict in Kosovo. The</p>	<p>total: \$2.41 million (WB: \$1.2 million); Component 2: total: \$ 2.03 million (WB: \$1.02 million); Component 3: total: \$0.4 million (WB: \$0.21 million)</p> <p>Total: \$11.6 million (WB \$10. million; Government \$1.60). Component 1: total: \$4.56 million (WB: \$4.56 million);</p>	Yes (ICR—No. 27574, 01/15/2003)

4.	Privatization Social Support Project (PSSP) No. 20709-TU	Turkey	11/27/2000	Adjustment schemes for retrenched workers; employment services; training for retrenched workers	<p>project supports completion of enterprises privatization and focuses on poverty alleviation and human capital development by targeting social assistance programs and upgrading social services. Components:</p> <p>1/ Labor restructuring: Finances severance payments for workers of MSOEs and limited assistance to develop employment services; 2/ Labor redeployment: Facilitate targeted beneficiaries into the labor force; 3/ Social benefits: Improve social programs effectiveness and develop institutional capacity to evaluate social protection and labor market programs.</p>	<p>Component 2: Total: \$6.18 million (WB: \$4.84 million); Component 3: Total: \$0.4 million (WB: \$0.39 million); Component 4: Total: \$0.46 million (WB: \$0.21 million)</p>	No
					<p>Supports achievements of the government's privatization program, mitigates the negative social and economic impact of the privatization of state-owned enterprises, and monitors the social impact of the Economic Reform Program (ERP). Components: 1/ Job Loss Compensation: Provides severance and related payments to displaced workers; 2/ Labor Redeployment Program (LRP): Provides labor redeployment services (job counseling, retraining, temporary community employment, small</p>	<p>Total: \$355.3 million (WB: \$250.0 million; Government \$105.3 million). Component 1: Total: \$322.4 million (WB: \$225.7 million); Component 2: Total: \$28.3 million (WB: \$20.2 million)</p>	

No.	Project Name and Number	Country	Approval Date	Intervention Type	Description and Components	Financing (total, by component and by institutions)	Evaluation (Yes—Report #/No)
5.	Second Privatization Social Support Project (PSSP2) No: 31738-TU	Turkey	05/10/2005	Adjustment schemes for retrenched workers; employment services; training for retrenched workers; labor administration	business incubators, small business technical assistance) to displaced workers, and including secondary layoffs, to assist them in rapidly reentering the labor market. Support the government's privatization program by mitigating the negative social and economic impact of the privatization of state-owned enterprises (SOEs). Components: 1/ Job Loss Compensation (JLC): assists workers made redundant (severance and related payments, early retirement); 2/ Labor Redeployment Services (LRS): helps affected workers find alternative employment (finances a variety of LRS, including job counseling, placement services, labor retraining, business advisory services, and temporary community employment through the Turkish Employment Agency [ISKUR], and small business incubators through the Small and Medium Industry Development Agency [KOSGEB]); 3/ Management Monitoring and Evaluation (MME): ensure effective implementation and assess the social impact of privatization.	Total: \$581.7 million (WB \$465.4 million (€360 million). Component 1: Total: €420.1 million; Component 2: Total: €27.2 million; Component 3: Total: €0.9 million	No

6.	Hard Coal Social Mitigation Project No: 28061-POL	Poland	03/10/2004	Adjustment schemes for retrenched workers; employment subsidies	Downsize employment and redeploy surplus labor using socially acceptable measures to mitigate the consequences of program implementation and the proposed new employment restructuring. Components: 1/ Severance Payments for underground workers under the 2003–2006 Program; 2/ Severance Payments, Reskilling and Reemployment for surface workers under the 2003–2006 Program, including: severance payments to surface workers and reemployment incentives payments to employers hiring eligible redundant exsurface workers; 3/ Severance payment commitments from previously implemented Miners' Social Packages under the 1998–2002 Program.	Total: \$300 million (WB \$200 million; Government \$100 million). Component 1: WB: \$70 million; Component 2: WB: \$35 million; Component 3: WB: \$95 million	No
7.	Railway Restructuring Project No: 21797-POL	Poland	04/30/2001	Adjustment schemes for retrenched workers; employment services; unemployment assistance/insurance; training for retrenched workers	Aims to restructure Polish State Railways' (PKP) to increase efficiency, improve finances, and privatize selected activities. Components finance and support: 1/ Income support (severance lump sums; preretirement benefits; railway leave; unemployment benefit); 2/ Labor Redeployment Programs (requalification training as well as professional and social advice and other forms of professional guidance). These include general labor redeployment programs, and special labor redeployment programs.	Total financing \$335.26 million (WB \$101.03 million); Component 1: \$296.2 million (WB \$98.57 million, except for the unemployment benefit); Component 2: \$23.68 million (no WB financing)	No

No.	Project Name and Number	Country	Approval Date	Intervention Type	Description and Components	Financing (total, by component and by institutions)	Evaluation (Yes—Report #/No)
8.	Railway Modernization and Restructuring Project No: 18553-HR	Croatia	12/08/1998	Adjustment schemes for retrenched workers (severance payment)	Seeks to modernize and restructure Hrvatske Zeljeznice (HZ) to diminish its deficit and financial burden on the budget while creating a company adapted to a competitive transport market. The major social issue faced by the project is related to the staff retrenchment and services reduction components. The project foresees the separation of about 7,000 staff (30 percent of the 1998 staff). Component 6: Redundant staff will be eligible for a redundancy or an early retirement package.	Total financing \$183.0 million (WB \$101 million); Component 6: \$82.4 million (WB \$35.4 million)	IC Report No: 33204 12/19/2005
Asia							
1.	Enterprise Growth and Bank Modernization Project No: 27979	Bangladesh	05/11/2004	Adjustment schemes for retrenched workers; microenterprises (microcredit); employment services (United Kingdom Department for International Development [DFID]); training for retrenched workers (DFID)	Trigger employment generation through private sector enterprise growth and reforms within the SOEs. Components: 1/ Enterprise growth supports the development of the small enterprise sector through the Small Enterprise Fund (SEF), as a refinancing facility where funds will be on-loan to SME-focused banks to help scale up their small enterprise portfolio;	Total financing \$480 million (WB \$250.0 million); Component 1: \$20 million (WB \$10 million); Component 4: \$372 million (WB \$180 million); DFID \$77.5 million; Component 5: \$10 million	

2.	Uttar Pradesh Power Sector Restructuring Project No: 20250-IN	India	03/24/2000	Adjustment schemes for retrenched workers	<p>4/ Support for voluntary retirement schemes (VRS) in SOEs, which are being closed down and/or privatized—covering retirements (continue the assistance initiated under the World Bank's Development Support Credit [DSC], which supported much of the first tranche of 28 SOE closures in 2001–2). Designed to cover the VRS costs to the government of a second tranche of about 95 enterprises slated for closure/privatization over the period 2002–3 to 2007–8;</p> <p>5/ Retraining and counseling services for retrenched/retired staff of SOE, financed completely by DFID. Activities include safety net program and social assistance and social protection program. It provides adequate counseling and retraining support to retired workers.</p>	<p>Total financing \$236 million (WB \$150 million); Component 5: \$5 million (all WB)</p>	<p>Yes. ICR (SCL- 45450 PPFB- P2291 PPFB-P2290) Report No: 32423 05/24/2005</p>

No.	Project Name and Number	Country	Approval Date	Intervention Type	Description and Components	Financing (total, by component and by institutions)	Evaluation (Yes—Report #/No)
3.	Banking Sector Restructuring and Privatization Project No: 22509-PAK	Pakistan	10/01/2001	Adjustment schemes for retrenched workers	<p>reduce the most critical bottlenecks in the power system to improve the supply and establish the benefits; and to build and develop support among key stakeholders in the state. Component 5 helps develop a VRS.</p> <p>Support implementation of banking reform program to create a competitive private banking system, strong regulatory framework, and an effective banking court system. Component 1: Finances the Nationalized Commercial Bank (NCB) staff rationalization through a voluntary separation scheme, whereby a severance package (consisting of cash compensation calculated on the basis of one month pay per year of service, plus commutation of all annual leave, pensions, and medical benefits) will be provided. The voluntary scheme will be complemented by the outsourcing of noncore</p>	<p>Total financing \$540 million (WB IDA \$300 million); Component 1: \$437 million (WB \$300.0)</p>	<p>Yes. ICR (IDA-35710) Report No: 32588 06/15/2005</p>

4.	Enterprise Reform Project No: 19300-CHA	China	06/28/1999	Training for retrenched workers; employment services (counseling)	<p>staff and leave without pay, but without benefits for those in executive levels.</p> <p>The project will help revisit and test ways to foster retraining of laid-off workers in a manner that is targeted at job growth opportunities, especially in the service sectors. One of these ways will be retraining and counseling to laid-off state enterprise employees to start their own businesses (reemployment) (Component 3). Each component will be implemented in the following areas: Changsha, Shenyang, Wuhan, and Wuhu.</p>	<p>Total financing \$8.14 million (WB IDA \$5 million); Cofinanciers \$2.22 million and Government \$0.92 million</p> <p>Component 3: Total \$1.24 million (WB \$0.90)</p>	IC Note Report No. 27454 11/30/2003
Africa							
1.	Transport Corridors Improvement Project No. 27668	Mali	03/11/2004	Adjustment schemes for retrenched workers; employment services; training for retrenched workers	<p>Component A1: Social and compensation plan to mitigate the impact of the concessioning of rail services to a private operator on staff declared redundant. Financed activities: severance payments; technical advisory services and operating costs of the unit created to provide</p>	<p>Total: \$32.8 million</p> <p>Component 1: \$13.47 million</p> <p>Severance payments:</p>	No

No.	Project Name and Number	Country	Approval Date	Intervention Type	Description and Components	Financing (total, by component and by institutions)	Evaluation (Yes—Report #/No)
2.	Transport Sector Reform and Rehabilitation Project (APL-Phase 1) No: 20395-MAG	Madagascar	05/02/2000	Adjustment schemes for retrenched workers; training for retrenched workers	support to redundant staff in evaluating training needs, finding a new job, and preparing personal business projects; facilitating reinsertion of redundant staff; and technical advisory services to monitor the social impact of redundancies during and after the period of implementation of the social and compensation plan.	\$13.2 million; Advisory services to the unit that will provide support to redundant staff: \$0.16 million	
3.	Private Investment Promotion Project	Senegal		Training for retrenched workers; adjustment schemes for retrenched workers	Postal reforms (\$6.5 million financed by IDA); Finance the preparation of compensation packages. Training will generally cover individual, group,		

4.	Economic Reform and Governance Project (federal government) No: 30383-NG	Nigeria	11/15/2004	Training for retrenched workers; adjustment schemes for retrenched workers (from public sector); employment services	and on-the-job training of technical staff. Components: 2/ Pilot civil service administrative reforms support restructuring in four pilot ministries and capacity building for the newly established Bureau for Public Service Reforms (BPSR). Assistance includes: termination benefits and facilitating reinsertion through training activities to aid redeployment toward new activities, adaptation to new jobs, acquisition of skills necessary to develop personal projects, and customized counseling; 3/ Pensions reforms.	Total financing \$179.22 million (WB-IDA: \$140); Training \$48.23 Million Severance \$48.23 million	No
5.	Railways Restructuring Project No: 21073-ZM	Zambia	10/18/2000	Adjustment schemes for retrenched workers; training for retrenched workers	Project aims a substantial restructuring of Zambia Railways, to increase its operating efficiency, reduce operational costs, and configure its freight services, and tariffs. Components 2/ Staff rationalization finances retrenchment compensation through severance payments, and an additional 15 percent contingency will be provided to cope with any variations; and pension obligations and liabilities	Total financing \$31.0 million (WB IDA \$27); Component 2: \$16.90 million (WB \$15.2 million); Component 7: \$1 million (all WB)	Yes. ICR (IDA-34330 TF-23134), Report No: 32520 12/20/2005

No.	Project Name and Number	Country	Approval Date	Intervention Type	Description and Components	Financing (total, by component and by institutions)	Evaluation (Yes—Report #/No)
6.	Privatization and Utility Sector Reform Project No: 20016-UG	Uganda	05/22/2000	Adjustment schemes for retrenched workers; employment services	<p>funded by the pension fund; 7/ Social mitigation, based on recommendations of the social assessments.</p> <p>Project aims to improve the quality, coverage, and economic efficiency of commercial and utility services through privatization, private participation in infrastructure, and an improved regulatory framework. Component 1: Provides technical assistance and on-the-job training to help the government design and implement the privatization program, and severance payments and redeployment support.</p>	<p>Total financing \$92.1 million (WB IDA \$45.3 million); Component 1: \$71.7 million (WB \$25.5 million)</p>	No
7.	Railways and Ports Restructuring Project	Mozambique	09/14/1999	Adjustment schemes for retrenched workers; employment services; training for retrenched workers	<p>Increase the operating efficiency of three major port-rail systems in Mozambique, and enable share increases in their international freight traffic with neighboring countries.</p> <p>Component 2: The adverse impact of involuntary separations of a large number of surplus staff is minimized through a staff rationalization program that offers specially designed retirement and</p>	<p>Total financing \$120 million (WB IDA \$100.0 million);</p> <p>Component 2: total \$93.5 million, of which, staff redundancy \$84 million (WB \$67 million) and \$7 million</p>	No

				retrenchment packages; redeployment support to help workers find alternative jobs or become self-employed; social mitigation measures; creation of a pension fund for the remaining CFM employees; a comprehensive pension study for all public enterprises including CFM.	(staff redeployment)
Latin America and the Caribbean Region					
1.	Postal Services Reform Project	Trinidad and Tobago	02/25/1999	Adjustment schemes for retrenched workers	<p>Total financing \$23.04 million (WB \$14.85);</p> <p>VSEP component financed by the government only \$2.7 million</p>
Middle East and North Africa Region					
1.	Transport Sector Investment Project APL (Phase II) No: 21151 TUN	Tunisia	02/21/2001	Adjustment schemes for retrenched workers	<p>Total financing \$56.6 million (WB \$37.6);</p> <p>No</p> <p>Severance \$36.2 million</p>

No.	Project Name and Number	Country	Approval Date	Intervention Type	Description and Components	Financing (total, by component and by institutions)	Evaluation (Yes—Report #/No)
2.	Civil Service Modernization Project No: 20209-YEM	Republic of Yemen	03/23/2000	Training for retrenched workers; adjustment schemes for retrenched workers	<p>Project will establish a mechanism to reduce the number of unqualified civil servants and initiate a restructuring process in individual ministries.</p> <p>Components: 1/ Among other activities, includes extensive training through specific modular courses on new core systems and skills; 2/ Technical assistance will be provided to create a civil service fund and establish its policy framework regarding retirement, redundancy, and severance options.</p>	<p>Total financing \$33 million (WB \$30);</p> <p>* Buy-out packages will be financed by the government</p>	No

ANNEX II. LIST OF ORGANIZATIONS THAT HAVE OBTAINED AND RENEWED AN INTERNATIONAL LABOUR ORGANIZATION PORTWORKER DEVELOPMENT PROGRAM LICENSE

List of organizations which have obtained and renewed a ILO PDP License			
Organization/Institution	Acquired License	Valid License	Nonrenewed License
Hong Kong International Container Terminals Ltd. (Hong Kong, China)	YES	YES	NO
TEMPO, Municipal Port Management (the Netherlands)	YES		NO
Shipping and Transport College/International Maritime Transport Academy (the Netherlands)	YES		NO
Mauritius Port Authority (Mauritius)	YES	YES	
PORTNET Academy (South Africa)	YES		NO
Sri Lanka Ports Authority (Sri Lanka)	YES	YES	
PNG Harbours Board (Guinea)			
JP Training & Development SDN BHD (Malaysia)	YES	YES	NO
MOMAF - Ministry of Maritime Affairs and Fisheries / Shipping and Logistics Bureau (Republic of Korea)	YES		NO
Carriers Container Council, Inc. (United States)	YES	YES	
Colombo Nautical & Engineering College (Sri Lanka)			
Jakarta International Container Terminal (Indonesia)	YES		NO
Wubeling and Partners, port safety Consultants, Rotterdam (the Netherlands)	YES		NO
The Hong Kong Polytechnic University (Hong Kong, China)	YES		NO
U.S. Merchant Marine Academy (United States)	YES	YES	
World Maritime University (Sweden)	YES	YES	
Pelabuhan Tanjung Pelepas Sdn Bhd (Malaysia)	YES	YES	
Pacific Maritime Association (United States)	YES	YES	
AMC Search Ltd. (Australia)	YES	YES	
Global Maritime & Transportation School (United States)	YES	YES	
UNCTAD (Switzerland)	YES	YES	
Klang Container Terminal Bhd (Malaysia)			
Chung-Ang University (Republic of Korea)	YES	YES	
Express Maritime Services Ltd. (Ghana)	YES	YES	
Sea Ports Corporation Training Centre (Sudan)			
Instituto de Educacion Nautica y Portuaria A.C. (IENPAC) (Mexico)	YES	YES	
Regional Maritime Academy (Ghana)	YES	YES	
IFIRA Wharf & Stevedoring (1994) Ltd. /(Port Vila, Vanuatu)	YES	YES	
Kelang Multi Terminal (WESTPORT) (Malaysia)	YES	YES	
Hong Kong Logistics Association (Hong Kong, China)	YES	YES	
Thessaloniki Port Authority S.A. (Greece)	YES	YES	
Port and Coast Directory (Maritime Authority) (Brazil)	YES	YES	
Philippine Ports Authority (Philippines)	YES	YES	
Altamira Terminal Portuaria (ATP) (Mexico)			
Internacional de Contenedores Asociados de Veracruz (Mexico)			
Oriental Port and Allied Services Corporation (Philippines)	YES	YES	
Joint Dock Labour Industrial Council (Nigeria)	YES	YES	
Container and RO-RO Terminal (Slovenia)	YES	YES	
Thai Laemchabang Terminal Co., Ltd. (Thailand)	YES	YES	

ANNEX II. CONTINUED

Organization/Institution	Acquired License	Valid License	Nonrenewed License
Kerria Ltd. (Russian Federation)	YES	YES	
Shipping & Logistics (Australia)	YES	YES	
P&O Ports Pvt. Ltd. (India)	YES	YES	
Nigerian Ports Authority (Nigeria)	YES	YES	
Malaysian Association of Productivity (Malaysia)	YES	YES	
Indian Institute of Port Management (India)	YES	YES	
Shanghai Maritime University (China)	YES	YES	
Department of Maritime Transport, Ministry of Transport and Communication (Eritrea)	YES	YES	
Arab Academy for Science and Technology, Port Training Institute (Egypt)	YES	YES	
Modern Terminals Limited (Hong Kong, China)	YES	YES	
Consilium Services Inc. (Canada)	YES	YES	
Manzanillo International Terminal-Panama S.A. (Panama)	YES	YES	
Comision Centroamericana de Transporte Maritimo (Nicaragua)	YES	YES	
HZSAFETY B.V. (the Netherlands)	YES	YES	
PSA Corporation Limited (Singapore)	YES	YES	
PLIPDECO (Trinidad and Tobago)	YES	YES	
Fundacion Puertos de las Palmas (Spain)	YES	YES	
Chittagong Port Authority (Bangladesh) Cia. Minera Antamina S.A. (Peru)	YES	YES	
Ministry for Competitiveness and Communications (Malta)	YES	YES	
Arser S.A. (Turkey)	YES	YES	
Sri Lanka Port Authorities (Sri Lanka)	YES	YES	
Bandari College, Tanzania Harbours Authority (Tanzania)	YES	YES	
Panama Ports Corporation (Balboa and Cristobal Terminals) (Panama)	YES	YES	
Kenya Port Authority (Kenya)	YES	YES	
Dubai Port Authority (United Arab Emirates)	YES	YES	
Association TRAINMAR in South America (ATAS) (Argentina)	YES	YES	
Source: International Labor Organisation.			

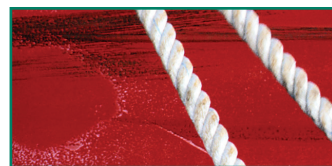


PORT REFORM TOOLKIT

SECOND EDITION

M O D U L E 8

IMPLEMENTING PORT REFORM



THE WORLD BANK

© 2007 The International Bank for Reconstruction and Development / The World Bank

All rights reserved.

The findings, interpretations, and conclusions expressed herein are those of the author(s) and do not necessarily reflect the views of Public-Private Infrastructure Advisory Facility (PPIAF) or the Board of Executive Directors of the World Bank or the governments they represent.

Neither PPIAF nor the World Bank guarantees the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of PPIAF or the World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

The material in this work is copyrighted. Copyright is held by the World Bank on behalf of both the World Bank and PPIAF. No part of this work may be reproduced or transmitted in any form or by any means, electronic or mechanical, including copying, recording, or inclusion in any information storage and retrieval system, without the prior written permission of the World Bank. The World Bank encourages dissemination of its work and will normally grant permission promptly.

For all other queries on rights and licenses, including subsidiary rights, please contact the Office of the Publisher, World Bank, 1818 H Street NW, Washington, DC 20433, USA, fax 202-522-2422, e-mail pubrights@worldbank.org.

ISBN-10: 0-8213-6607-6

ISBN-13: 978-0-8213-6607-3

eISBN: 0-8213-6608-4

eISBN-13: 978-0-8213-6608-0

DOI: 10.1596/978-0-8213-6607-3

MODULE EIGHT CONTENTS

1. Strategic Preparation: The Interministerial Working Group	353
1.1. IWG Mandate and Composition	354
1.2. Hiring Advisers	354
1.3. Time Frame	355
1.4. IWG Workplan	356
2. Redefinition of Authorities and Powers	356
2.1. Regulatory Principles	356
2.2. Port Authorities and Consultations	356
2.3. Public Infrastructure Pricing	356
2.4. Labor Redeployment	359
2.5. Contract Management Principles and Procedures	359
3. Legal Adaptation	359
4. Transaction Preparation	359
4.1. Financial Model	360
4.2. Due Diligence	360
4.3. Contractual Document Preparation	360
4.4. Bidding Documents' Preparation	360
References	363

BOXES

Box 1: Hiring and Managing Advisers	355
Box 2: Port Reform Process	361
Box 2a: Port Reform Process	362

Acknowledgments

This Second Edition of the Port Reform Toolkit has been produced with the financial assistance of a grant from TRISP, a partnership between the U.K. Department for International Development and the World Bank, for learning and sharing of knowledge in the fields of transport and rural infrastructure services.

Financial assistance was also provided through a grant from The Netherlands Transport and Infrastructure Trust Fund (Netherlands Ministry of Transport, Public Works, and Water Management) for the enhancement of the Toolkit's content, for which consultants of the Rotterdam Maritime Group (RMG) were contracted.

We wish to give special thanks to Christiaan van Krimpen, John Koppies, and Simme Veldman of the Rotterdam Maritime Group, Kees Marges formerly of ITF, and Marios Meletiou of the ILO for their contributions to this work.

The First Edition of the Port Reform Toolkit was prepared and elaborated thanks to the financing and technical contributions of the following organizations.

The Public-Private Infrastructure Advisory Facility (PPIAF)

PPIAF is a multi-donor technical assistance facility aimed at helping developing countries improve the quality of their infrastructure through private sector involvement. For more information on the facility see the Web site: www.ppiaf.org.

The Netherlands Consultant Trust Fund

The French Ministry of Foreign Affairs

The World Bank

International Maritime Associates (USA)

Mainport Holding Rotterdam Consultancy (formerly known as TEMPO), Rotterdam Municipal Port Management (The Netherlands)

The Rotterdam Maritime Group (The Netherlands)

Holland and Knight LLP (USA)

ISTED (France)

Nathan Associates (USA)

United Nations Economic Commission for Latin America and the Caribbean (Chile)

PA Consulting (USA)

The preparation and publishing of the Port Reform Toolkit was performed under the management of Marc Juhel, Ronald Kopicki, Cornelis "Bert" Kruk, and Bradley Julian of the World Bank Transport Division.

Comments are welcome.

Please send them to the World Bank Transport Help Desk.

Fax: 1.202.522.3223. Internet: Transport@worldbank.org

8

MODULE

Implementing Port Reform SECOND EDITION

Shifting the boundary between the public and private sectors entails four kinds of preparations: (1) Strategic preparation, including the consideration of a particular institutional model and service ensemble that best matches a port's competitive environment and its growth prospects. (2) Redefinition of authorities and their powers and mandates, resulting in regulations, rules, tariffs, and procedures that will ensure that the provision of all port services are fully coordinated and that the proper incentives to spur efficiency are in place. (3) Legal adaptation, which establishes the sectoral legal framework based on the principles agreed upon as a result of the strategic analysis and the redefinition of institutional rules. (4) Transaction preparation, which results in the development of tendering processes that are transparent, open, and competitive.

This module describes how to undertake this series of tasks in a practical and effective way.

1. STRATEGIC PREPARATION: THE INTERMINISTERIAL WORKING GROUP

Because of the wide-ranging implications of port reform for the national economy, deciding to embark on the path to reform must be an initiative fully supported at the highest levels of

government. Once the principle is agreed upon by the council of ministers or cabinet, an effective way to overcome the traditional difficulties inherent with working across several ministerial departments is to set up an interministerial working group (IWG) under the chairmanship of a high level public official, and give it an explicit mandate. Drafting and getting this mandate

approved will be the first step to set the reform process in motion.

Due to its interministerial nature, and to the fact that most of its proposed decisions will have a far-reaching impact across a number of ministerial departments, a logical proposition would be for the IWG to report directly to the head of government, prime minister, or council of ministers.

1.1. IWG Mandate and Composition

The IWG will have to define the objectives of port reform and draft a new or revised institutional framework for the sector based on these objectives. Its proposals should be included in a port sector policy paper that should be endorsed by the council of ministers. This policy paper then should be distributed for comments from all of the stakeholders within the port and maritime sectors, such as port cities, port authorities, chambers of commerce, port labor unions, shipping and liner agents, and the like. Based on the sector comments, the policy paper should be adapted and submitted to parliament or the concerned parliamentary commission for approval. In particular, this policy paper will propose a preferred choice for the new port management model to be implemented.

The skills of the people appointed to the IWG will be critical. First, IWG members must represent the various ministerial departments directly interested in port sector activities, including transport, external trade, finance, labor, environment, and possibly agriculture, industry, and more. Second, they must collectively hold the required competence in terms of economic, financial, technical, and social aspects of the port industry both domestically and regionally. Third, they must be seen as independent from any interest group, and the key staff must have a recognized reputation in their field of competence. While the IWG may, and should, consult with all interested stakeholders and representatives of the professional port and maritime community, it must be able to view the reform process from a broader economic perspective, focusing on the overall public interest of the country.

1.2. Hiring Advisers

Designing and implementing a port sector reform program involving increased private sector participation in port services requires substantial economic, financial, technical, and legal expertise, and the coordination of this expertise. The process requires detailed work, first refining the institutional option to be implemented, then preparing the legal and regulatory measures required to support it, and finally drafting complex documents, such as the necessary enabling laws (port law, competition law, and more), reform policies and procedures, and model concession agreements. Preparing these documents often involves several iterations, as preliminary versions are distributed to the national professional community and to prospective private partners for comment, and then amended in accordance with those comments and with the government's policy concerns.

Governments often lack the full range of expertise within the civil service to carry out these tasks. Some countries may have few of the necessary skills available locally and will need international advisers. All governments will need to contract out at least some of these tasks to external advisers. Managing these advisers then becomes a primary task of the IWG.

Various kinds of advisers may be helpful. Economic and regulatory consultants can advise on how the market for port services can be structured and how competition can be promoted, depending on domestic and regional contexts; they can also help devise adequate regulatory and monitoring mechanisms when needed. Legal consultants can help prepare draft legislation and regulations as well as model concession agreements if required. In the event that the government develops a national ports master plan, technical consultants can assess port facilities and help prepare technical specifications and requirements for both general regulatory purposes and specific concession contracts. Environmental consultants can prepare environmental studies, baseline surveys of existing conditions at the outset of the reform process, and environmental impact assessments of specific

Box 1: Hiring and Managing Advisers

The Public Private Infrastructure Advisory Facility (PPIAF <http://www.ppiaf.org/>) has funded the *Toolkit: A Guide for Hiring and Managing Advisers for Private Participation in Infrastructure*. This Toolkit will assist governments in hiring and managing economic consultants, financial advisors, and legal experts as well as other specialists required to increase the role of the private sector in all infrastructure services. The main components of the Toolkit are an overview, an executive summary, and three volumes of publications that contain nine modules as follows:

- Volume 1 introduces PPI reforms and the role of advisors in those reforms:
 - ~ Module 1: Highlights how advisors can help improve the chances of success of public-private infrastructure reforms, but warns that they are costly and must be well managed.
 - ~ Module 2: Describes the types of infrastructure reforms and breaks down the infrastructure reform process in four key stages: formulating policy, establishing the legal and regulatory framework, tendering the contract, and managing the contract.
 - ~ Module 3: Outlines the types of advisors that may be required (economic, financial, legal, technical, human resources, and communication) and their roles at each stage.
 - ~ Module 4: Discusses ways of packaging advisory services and

defining terms of reference, budget, and timetable.

- ~ Module 5: Provides concrete recommendations for tailoring advisory packages to small projects.
- Volume 2 is made up of a single module, Module 6, which provides a practical guide to sources of funding for transaction support from multilateral and bilateral agencies, either through technical assistance or lending. It discusses their eligibility criteria and funding interests. Some information is out of date, but most contact details and Web links remain current.
- Volume 3 goes into more details about the mechanics of hiring advisors:
 - ~ Module 7: Discusses methods of selecting advisors.
 - ~ Module 8: Recommends alternative ways of paying advisors for their advice.
 - ~ Module 9: Provides guidance on how governments should be organized internally to manage the reforms and supervise advisors.

The Annexes (PDF, 117B) contain sample evaluation forms, sample proposal formats, and sample terms of reference. Information for ordering the PPI Advisory Toolkit as well as a self-guided tour of the Toolkit's main themes is available on PPIAF's homepage: www.ppiaf.org.

development options. Finally, investment bankers and financial consultants can help prepare financial projections and cost benefit analyses for the sector as a whole. In the event of specific port development projects, they might also assist in determining the bankability from a private investor's perspective. For more information on how best to select and hire advisers, see Box 1 on the separate World Bank toolkit for hiring and managing advisers for private participation in infrastructure (PPI).

1.3. Time Frame

For the sake of efficiency, it is advisable to give explicit deadlines to the IWG. The time frame for conceptualizing and implementing reform, however, must be realistic. Time requirements

obviously will vary country by country, depending on the local economic context and on the physical magnitude of the sector; however, a six-month period is likely to be the minimum time required to establish a sector reform strategy and secure agreement on it from various stakeholders. This phase may extend up to 12 months in more complex institutional and operational environments. Implementing the reform itself—including transforming public port authorities, setting up regulatory bodies as needed, preparing transactions with private partners, and closing contracts—may require between one to two years, assuming no political disruptions occur. Altogether, a two- to three-year time frame from the inception of the reform process to when the new sector

organization is up and running would seem a reasonable estimate.

1.4. IWG Workplan

The first element of the IWG workplan should be to consider the strategic situation of the port sector, and to review the operational and economic strengths and weaknesses of the domestic port and maritime industry. Organizing effective communications with the national port and maritime community, as well as with important stakeholders (for example, the importers/exporters association, chambers of commerce, and inland transport carriers), and maintaining this interaction throughout the reform design and implementation process, will be a major responsibility of the IWG. The IWG review should include:

- Market conditions, competition conditions (both domestic and regional), and demand forecasts.
- Domestic legal and regulatory conditions.
- Domestic institutional arrangements.
- National strategic objectives for the port sector in support of overall national economic development goals.

The IWG must then decide on the port sector institutional and management model that would best suit the national conditions and strategic economic objectives. Information included in Modules 2 and 3 on evaluating and selecting the appropriate model may be helpful in this process. Once the main organizational principles of the sector are agreed upon within the IWG, the government must firmly endorse and adopt them so that all parties can be assured that the reform program will be seen through to completion.

2. REDEFINITION OF AUTHORITIES AND POWERS

For the next step in the strategic preparation process, the IWG should define the regulatory principles applicable to the sector and the methods to be employed in implementing reform. This work is complementary to the organizational

arrangements, and usually has a bearing on the legal provisions to be developed as part of the new sectoral legislative framework. On the basis on the institutional and management framework decided upon as part of the strategic preparation phase, the IWG can then turn its attention to the establishment of the public entities that will be in charge of regulating and monitoring the sector, and the definition of their mandates.

2.1. Regulatory Principles

Following the assessment of the competitive situation in the sector (from both a national and regional perspective), the IWG should assess the need for an economic regulatory mechanism. If such a mechanism is determined to be necessary, the mandate, operating rules, and composition of the regulatory body should be established (see Module 6 for guidance in this regard). In all cases, regulatory principles will have to be drafted or updated to take into account the consequences of the new operational framework and of technological changes.

2.2. Port Authorities and Consultations

As part of the reform process, the status and mandates of the public port authorities will be redefined, along with their missions and responsibilities. Reporting and monitoring relationships with line ministries and private operators, respectively, should be defined precisely, together with the appropriate implementation guidelines. In doing so, particular attention should be paid to the establishment of official consultation procedures between the private port and maritime community and the local public monitoring bodies (for example, the public port authorities). These consultation procedures will be important in ensuring that customers' concerns and suggestions regarding the functioning of the ports can be efficiently channeled to the ports' management boards or to the sector regulatory body.

2.3. Public Infrastructure Pricing

The principles for port public infrastructure pricing will also have to be agreed upon at this

stage. Recently, a great deal of attention has been devoted to this very issue within the European Union (EU), resulting in the publication of two papers of significant interest: a Green Paper on “Sea Ports and Maritime Infrastructure,” and a White Paper on “Fair Payment for Infrastructure Use: A Phased Approach to a Common Transport Infrastructure Charging Framework in the EU.” Those papers, following the conclusions of an earlier study, European Sea Port Policy, 1993, basically endorse the view that there is no fundamental difference between investments in port infrastructure and other capital-intensive investments in industrial complexes. Therefore, there should be no reason for adopting a completely different approach to port investments, and consequently no reason why direct users should not bear the costs of such investments. The study went on to suggest that the introduction of market principles in infrastructure pricing would be the most effective remedy to avoid the risk of creating wasteful overcapacity and possible distortions of trade flows (except in the case of pricing maritime access and protection infrastructure).

This distinction made between port access and protection infrastructure (which can take the form of basic infrastructure and operational infrastructure) and other forms of port-related investments relates well to the new sharing of responsibilities between public authorities (as owners and developers of basic infrastructure) and private service providers (as operators or concessionaires and licensees or investors in operational infrastructure).

The result is that operational infrastructure (for example, berths) increasingly is being priced on commercial terms. The commercial transaction may be structured as a build-operate-transfer (BOT) or a build-own-operate-transfer (BOOT) concession agreement, where the operator or investor will include its capital cost in the cargo handling charges to be levied on its customers. Or, the transaction may be structured as an operating concession (where the operational infrastructure already exists), where the port

authority includes in the concession fee the amount required to cover the full depreciation of its previous investment, a cost that the concessionaire will again transfer to its own customers through its charges for services. The key to getting a fair tariff for the customer hinges on the competitive conditions prevailing for awarding the contract, and, sometimes, on the award criteria themselves. Generally, award criteria should rely predominantly on maximizing total discounted revenues to the port authority in cases where strong competition exists for the services to be concessioned, as well as on minimizing the cost for the customer in cases where competition is deemed weak or nonexistent.

Pricing of basic port infrastructure (mostly access and protection assets such as channels, breakwaters, and navigation aids) presents a different challenge. Most of these assets have unusually lengthy depreciation periods. It is common in official depreciation schedules for financially autonomous port authorities to find breakwaters being depreciated on a 80-year, sometimes even a 100-year, basis. This feature of basic port infrastructure raises two issues. First, these depreciation periods are, in the best of cases, about five to six times longer than any available commercial financing in the market (when there is a market for financing long-term infrastructure). And second, technical obsolescence (for example, insufficient access draft) may occur well before the end of these depreciation periods, effectively rendering worthless the original investment.

The EU papers referenced above list three well-known pricing options for basic infrastructure:

- Average cost pricing, which would guarantee full recovery, including past infrastructure investments.
- Charging for operating costs only, which would leave capital costs out, particularly for new investments.
- Marginal cost pricing, which is deemed to best meet economic efficiency requirements.

The research recommends an infrastructure charging policy based on long-term marginal costs, which would cover the cost of new capital and operating and external costs of infrastructure use. In other words, port basic infrastructure charges should be set in line with marginal costs, which would also take into account the continuing need for new investments and the existence of externalities relating to environment, congestion, and accidents.

Public landlord port authorities increasingly are organized as autonomous financial entities required to recover their full costs to the largest possible extent. As a consequence, these authorities have been confronted with the question of whether full cost recovery of basic infrastructure investments through user charges would weaken their competitiveness in the market to the point of seriously undermining their attainment of public policy objectives. Government authorities, from their perspective, while eager to curtail budget contributions to port infrastructure investments, sometimes worry that increased port user charges may divert traffic flows to other routes, which might prove economically disadvantageous for the country as a whole. Competitiveness issues in relation to port infrastructure charges are certainly worthy of attention, but must also be seen in perspective—on average, they amount to only 10 percent of the costs incurred during a port transit. This may be critical for ports facing strong competition (particularly when competing for transshipment traffic), but relatively minor in other circumstances. Of course, because of specific geographic settings, some ports may face higher than average access and protection infrastructure costs (for example, periodic maintenance of a long entrance channel).

The level of cost recovery required for basic infrastructure is contingent not only on the amount invested, but also on the terms under which it is financed. Because balanced budgets are now a must for port authorities, financing schemes will heavily drive the depreciation schedule built into infrastructure charges (that is, amortization schedules will supersede technical or economic life depreciation formulas). Commercial financing of

infrastructure, when available, offers much shorter maturities than the economic life of the port assets to be financed, therefore this would tend to drive up port charges significantly. To mitigate this phenomenon, governments sometimes agree to finance part of the access and protection costs of ports as part of the national budget, which effectively splits basic infrastructure costs between the user and the taxpayer. An example of one approach is in the United States, where dredging of access to ports from the high seas is carried out by the U.S. Corps of Engineers and is funded through the federal budget (while dredging of port basins is left to the port authorities). Another example is an approach taken in France, where the 1965 Law on Autonomous Port Authorities split port infrastructure costs between the port authority and the state budget, the latter bearing 100 percent of access dredging costs and 80 percent of protection costs (breakwaters). From an accounting standpoint, French port authorities register the government's contribution in their balance sheets as a subsidy, which is renewable, and, consequently, not depreciated. However, scarcity of budget resources in many countries is making these arrangements increasingly difficult to sustain, and while infrastructure subsidies of this kind may still exist, more often than not there is no guarantee that such subsidies will continue. Consequently, port authorities must fully depreciate the investment, subsidies included. These port authorities still benefit from the subsidy scheme, though, since their tariffs can reflect the depreciation of assets over their full economic lives.

Finally, there is the question of allocating these infrastructure charges between the ship and the cargo. In the past 50 years, a number of port authorities and governments have attempted to rationalize this allocation through analytical methods (for example, the Freas Formula in the United States), and later through cost accounting techniques. Historically, when infrastructure charges were actually split between ship dues and cargo dues, cargo ended up paying a much higher proportion of the total cost than the ship. Notwithstanding any formula-embedded rationale, this situation may also have had to

do with the respective bargaining power of the shipowners on one side (usually well organized) compared to the shippers on the other (typically not well organized and often much less able to negotiate effectively with port authorities).

This debate tends to become somewhat academic today, since in well-functioning shipping markets infrastructure charges assessed against vessels ultimately transfer back to shippers through the freight rates. Indeed, there is some rationale for the port to assess charges only against vessels, the physical characteristics of which largely determine the size and cost of the basic infrastructure required to accommodate them. There is, therefore, some logic in establishing a schedule of infrastructure dues based on those physical characteristics rather than on the characteristics of the cargo.

2.4. Labor Redeployment

Usually, port sector reform will entail a significant adjustment in the number and qualifications of port workers, both dockworkers and clerical staff. Module 7 provides a detailed overview of how to address this issue effectively. Authorities should organize interactions with the unions early on in the reform process to give reform the best chance for success. Areas that need to be discussed with unions include staff redeployment, retraining, and procedures and compensation principles in case redundancies prove unavoidable.

2.5. Contract Management Principles and Procedures

Once the mandates of all public entities are clearly defined, explicit procedures and regulations governing the award, management, and monitoring of contracts with private sector partners will have to be drafted. These procedures should be widely publicized through workshops organized with all domestic stakeholders and be open to interested foreign investors and operators so that the rules of the game are clear to all potential players.

3. LEGAL ADAPTATION

If the organizational changes contemplated should require changes in legislation, any neces-

sary legal work should get underway very early in the reform process. Often, port-related entities enter into commercial arrangements ahead of the legislative changes that are necessary to fully reform and liberalize the sector. Subsequent legal changes may complicate the contractual relationships for these initial deals. Or, these early investors may try to slow down the broader reform process so that they can enjoy as long as possible a competitive edge stemming in part from an advantageous legal situation.

Once the strategic choices for the reform process have been made, the main priority of the IWG will be to translate them into national legislation. This will generally include, without being limited to, the following elements:

- Conduct legal due diligence, identifying the pieces of legislation to be updated, changed, or scrapped altogether, and the missing pieces to be added.
- Conduct legal review of all aspects associated with port labor reform that can have significant consequences when it comes to funding the required transition measures.
- Draft new port sector legislative framework.
- Draft bylaws of reorganized or restructured public entities, port authorities, and regulatory authorities.
- Draft legislation governing contractual arrangements between public authorities and private commercial partners (for example, licenses, leases, and concessions).
- Draft standard bidding documents and standard contractual documents.
- Prepare all necessary briefing documentation to present the new legislative package for government and parliamentary approval.

4. TRANSACTION PREPARATION

There are myriad details that must be attended to as port reform initiatives move into their final stages. Dozens of documents and analyses must be prepared and made available to the

public, prospective investors, and port operators. The key documents are described below.

4.1. Financial Model

Establishing the viability of any given reform package will involve testing its overall financial sustainability, as well as its sensitivity to a few critical variables. Financial modeling should help the public authorities identify the transactions that will prove attractive to private sector partners, while providing them with the revenue streams they need to meet their own financial obligations. The project financial model included in Module 5, with a number of adjustable parameters, should help those responsible for port reform develop a financial picture reflecting the particular conditions of the transactions under consideration, thereby further helping decision makers select feasible packages to offer for bidding by private investors and developers.

The project financial model will be fed with data resulting from the following tasks:

- Preparation of project cost estimates (capital, operations, and maintenance).
- Establishment of tariff principles, structure and levels.
- Estimation of market demand and of corresponding revenues.
- Determination of the prospective capital structure (debt-equity ratio).
- Identification of the level of government support (guarantees, investment contribution).
- Assessment of tax, dividend, and foreign exchange requirements and their cash flow implications.

Assessment of staff restructuring costs from the review of labor practices and requirements must be built into the overall cost estimate of the reform program at this stage. Any redeployment of labor necessitated by port reform should preferably be carried out under the auspices of public authorities. Similarly, the attendant cost associated with any such redeployment should

be borne by public authorities as well, before the formal launch of the reform process. However, if all or part of these staff restructuring costs are left to the private sector, they should be factored into the financial model used to assess the feasibility of the reforms.

4.2. Due Diligence

Public authorities, possibly with help from specialized financial advisors, will have to prepare the required due diligence reports to certify the financial status of the assets and activities to be tendered.

4.3. Contractual Document Preparation

Public authorities should draft the contractual documents defining the operational and financial relationships between and among the contracting authority, the regulatory authority, and the private operators. These should especially include all required operational and financial covenants that may be deemed necessary. The details of concession contracts are provided in Module 4.

4.4. Bidding Documents' Preparation

In addition to the proposed draft contract, the tendering documentation should include all documents pertaining to the organization and rules governing the bidding process, with enough information provided to guarantee its transparency and fairness, thereby ensuring the widest participation by potential interested investors or operators possible. All documents and information relevant to the proposed transaction will then have to be displayed for review by potential bidders in a dedicated data room. For more detailed advice on how to structure and manage the bidding process (for more information, see Kerf et al. 1998).

Boxes 2 and 2a depict in detail a typical sequence of actions associated with port reform, with rough time frames associated with each action. This information should be useful in guiding reform decision makers through the entire process—from conceptualization through implementation.

Box 2: Port Reform Process

The Critical Path	Preparation Phase	Implementation Phase
Strategic Preparation		
Set up the interministerial working group (IWG) and define its mandate	■	
Organize interaction with the port and maritime community	■	
Port and maritime industry analysis (Module 2)		
Review market conditions, competition conditions, and demand forecasts	■	
Legal and regulatory review of current status	■	
Institutional review of current arrangements	■	
Draft port sector policy paper with principal reform objectives	■	
Choice of port sector institutional and management model	■	
Validation by government	■	
Redefinition of Authorities and Powers		
Determine technical and economic regulatory needs	■	
Establish regulatory authority	■	
Establish consultation principles with port and maritime community	■	
Draft technical regulations	■	
Adopt economic regulation principles as needed	■	
Establish principles for public infrastructure pricing		
Draft port authority statutes and mandates	■	
Organize interactions with unions on port staff redeployment	■	
Agree on procedures and compensation principles to handle staff redundancies	■	
Draft procedures for managing and monitoring new public-private partnerships for commercial operations	■	
Source: Author.		

Box 2a: Port Reform Process



REFERENCES

- Brodie, Peter. 1997. *Dictionary of Shipping Terms*, Third Edition.
- European Union. 1997. "Sea Ports and Maritime Infrastructure." Green Paper COM (97) 678 final, 10 December.
- European Union. 1998. "Fair Payment for Infrastructure Use: A Phased Approach to a Common Transport Infrastructure Charging Framework in the EU." White Paper, 22.07.1998 COM 466 Final, Brussels.
- Kerf, M., R. David Gray, T. Irwin, C. Levesque, and R. Taylor. 1998. "Concessions for Infrastructure—A Guide to Their Design and Award." Technical Paper No. 399, World Bank, Washington, DC. (This publication can be ordered from the World Bank.)
- Sullivan, Eric. 1996. *The Main Encyclopedic Dictionary*, Fifth Edition.

References

A

Alexander, Ian, and Timothy Irwin. 1997.

“Price Caps, Rate-of-Return Regulation, Risk and the Cost of Capital.”

In *The Private Sector on Infrastructure: Strategy, Regulation, and Risk*, pp. 33–34. Washington, DC: The World Bank Group.

AusInfo. 1998.

“Work Arrangement in Container Stevedoring, Research Report.”

Productivity Commission, AusInfo, Canberra, Australia.

B

Baird, Dr. Alfred J. 1999.

“Port Privatisation, Objectives, Extent, Process, and the United Kingdom Experience.”

Napier University, Edinburgh, 4th World Port Privatisation Conference, London, 22–24 September 1999.

Behrendt, D. K., and W. Thomson. 1997.

“Port Ownership: Public Responsibility or Private Enterprise.”

Ports and Harbors (October.)

Benichou, I., and D. Corchia. 1996.

“Le Financement de Projects.”

Editions ESKA.

Brodie, Peter. 1997.

Dictionary of Shipping Terms, Third Edition.

Burns, Phil, and Antonio Eustache. 1999.

Infrastructure Concessions, Information Flows, and Regulatory Risk. Washington, DC: The World Bank Group.

C

Cass, S. 1996.

Port Privatization: Process, Players and Progress.

Cargo System IIR Publications Ltd.

Chance, Clifford. 1991.

“Project Finance.”

Chapon, J. 1998.

“Réflexion pour une politique portuaire européenne.”

Chapon, J.

“Partenariats public/privé en matière portuaire.”

Conférence CIMER 98, Saint Denis de La Réunion. 1999. Published in Transports No. 394 (March–April).

Cohen, E., and C. Henry. 1997.

Service public , Secteur public.

Conseil d’Analyse Economique, La documentation Française.

Couper, A. D. 1986.

“New Cargo Handling Techniques: Implications for Port Employment and Skills.” ILO.

Courtot, H. 1998.

“La gestion des risques dans les projects.”

Economica.

Cullinane and Khanna.

Journal of Transport Economics and Policy.

D**Denoix De Saint Marc, R. 1996.**

Le service public.

Rapport au Premier Ministre, Collection des rapports officiels, La documentation Française.

Drewry Shipping Consultants Ltd. 2005.

Annual Review of Global Container Terminal Operators – 2005. Drewry House: London.

E

Economic Review, Vol. 13.

ENPC.

“Gestion and analyze financière, Suivi financier des contrats long terme.” module.

Euro News. 1997.

“Engineering Consultants: Where Would Europe Be Without Them?”

Special edition, No. 27, Project Financing, EFCA (September).

European Union. 1997.

“Sea Ports and Maritime Infrastructure.”

Green Paper COM (97) 678 final, 10 December.

European Union. 1998.

“Fair Payment for Infrastructure Use: A Phased Approach to a Common Transport Infrastructure Charging Framework in the EU.”

White Paper, 22.07.1998 COM 466 Final, Brussels.

Eustache, Antonio. 1999.

"Privatization and Regulation of Transport Infrastructure in the 1990s: Successes...and Bugs to Fix for the Next Millennium, p. 28. Washington, DC: World Bank.

F

Flora, J., and S. Holste. 1994.

"Public/Private Partnerships: Roadway Concessions."
Transport Division, World Bank.

G

Green, Richard, and Martin Rodriguez Pardina. 1999.

"Resetting Price Controls for Privatized Utilities: Manual for Regulators."
Economic Development Institute, World Bank, Washington, DC.

Guislain, Pierre. 1997.

The Privatization Challenge: A Strategic, Legal, and Institutional Analysis of International Experience.
Washington, DC: World Bank.

H

Heinrich, Michael. 1999.

"Port Efficiency—The Public-Private Partnership." (Port of Hamburg) World Ports Development, p.16.

Holocher, Dr. Klaus Harald. 1990.

Port Management Textbook, Volume 1. Bremen.

Hummels, D., D. Rapoport, and K. Yi. 1998.

"Vertical Specialization and the Changing Nature of World Trade."
FRBNY Economic Policy Review June: 92.

I

IAPH (International Association of Ports and Harbors). 1999.

Institutional Survey.

ILO (International Labour Organization). 1998.

"The ILO's Response to the Financial Crisis in East and South-East Asia."

Technical paper for the ILO's High Level Tripartite Meeting on Social Responses to the Financial Crisis in East and South East Asia Countries, Bangkok, Thailand, April 22–24, 1998.

Web site: <http://www.ilo.org/public/english/region/asro/bangkok/download/crisis/gb274.pdf>.

J

Juhel, M. H. 1999.

“Global Challenges for Ports and Terminals in the New Era.” Ports and Harbors (March).

K

Kent, P. E., and A. Hochstein. 1998.

“Port Reform and Privatization in Conditions of Limited Competition: The Experience in Columbia, Costa Rica, and Nicaragua.”

Journal of Maritime Policy and Management 25 (4): 313–333.

Kerf, M., R. David Gray, T. Irwin, C. Levesque, and R. Taylor. 1998.

“Concessions for Infrastructure—A Guide to Their Design and Award.” Technical Paper No. 399, World Bank, Washington, DC. (This publication can be ordered from the World Bank.)

Kerf, Michel, and Warrick Smith. 1996.

“Privatizing Africa’s Infrastructure: Promise and Challenge.”

Technical Paper No. 337, World Bank, Washington, DC.

M

Martinand, C.

“L’expérience Française du Financement Privé des Equipements Publics.” Economica.

Martinand, C.

“Politiques de transport.” ENPC Module.

McCallum, Elizabeth. 1999.

“Privatising Ports: A Legal Perspective.”

Privatisation International November, pp. 53–55.

McDonagh, Stephen. 1999.

Port Development International.

Monpert, J. Y. 1998.

“Le contexte des privatization and les acteurs: motivations and attentes des opérateurs—le point de vue de SAGA / BOLLORE.” AFD Conference, 19/10/98.

Mountford, R. 1997.

“Financing the Development of Ports.”

Ports and Harbors (November).

N

Nevitt, P. K., and F. Fabozzi. 1995.

Project Financing (sixth edition). Euromoney Publications.

O

Orsini, J. A. 1995.

“L’appréciation des risques inhérents au projet.”

Paper presented at Le montage des Financements de Projects Seminar, Management Global Information (November).

P**Peters, H. J., and M. Juhel.**

“Changing Role and Functions of Ports: Addressing the Reform Agenda.”

TWUTD, World Bank, Washington DC.

PDI (Port Development International). 1994.

“A Private Affair.”

Privatization supplement, Pdi (September).

R**Rama, Martin. 1999.**

“Public Sector Downsizing: An Introduction.” World Bank.

Ratheaux, O. 1996.

“Options de gestion des ports maritimes, Cas des ports africains.”

AFD Rezenthel, R. 1996.

“Les régimes portuaires dans le monde.” NPI, 30 December.

Rezenthel, R. 1996.

“Les régimes portuaires and le droit de la concurrence.”

NPI, 30 December.

Rezenthel, R. 1997.

“Les concessions portuaires.”

Gazette du palais (September).

Rezenthel, R. 1998.

“La délégation de service public and les concessions portuaires - Doctrine.” DMF 583 (June).

S**Saundry, Richard and Peter Turnbull. 1997.**

Private profit, public loss: The Financial and economic performance of U.K. ports.

Maritime Policy Management 24(4): 319.

Shaw, N., K. Gwilliam, and L. S. Thompson. 1996.

“Concessions in Transport.”

TWUTD, World Bank, Washington, DC.

Shaw, William, and Thompson. 1996.

“Concessions in Transport.” TWU Papers, Discussion Paper, World Bank, Washington, DC.

Smagghe, J. 1999.

“L’évolution institutionnelle des ports.”

Colloque Africa Port 2000, Lomé (January)

Smith, Warrick. 1997.

“Utility Regulators—The Independence Debate”

In *The Private Sector on Infrastructure: Strategy, Regulation, and Risk*, September, Washington, DC: World Bank.

Stoffaës, C. 1995.

Services publics, question d’avenir.

Rapport de la commission du Commissariat Général du Plan, Editions Odile Jacob/ La Documentation Française.

Sullivan, Eric.

1996. *The Main Encyclopedic Dictionary*, Fifth Edition.

T

Trujillo, Lourdes, and Gustavo Nombela. 1999.

“Privatization and Regulation of the Seaport Industry.”

Universidad de Las Palmas de Gran Canaria Dpto.

Análisis Económico Aplicado 35017 Las Palmas de Gran Canaria (Spain), December, p. 21.

U

UNCTAD (United Nations Conference on Trade and Development). 1984.

Handbook for Port Planners in Developing Countries. UNCTAD.

UNCTAD (United Nations Conference on Trade and Development). 1995.

“Comparative Experiences with Privatization: Policy Insights and Lessons Learned.” UNCTAD: New York and Geneva.

Web site: http://www.unescap.org/drrpad/publication/dp22_2122/chap5.PDF.

UNCTAD (United Nations Conference on Trade and Development). 1998.

Guidelines for Port Authorities and Governments on the Privatization of Port Facilities.

UNCTAD/SDTE/TIB/1.

UNCTAD (United Nations Conference on Trade and Development). 1998.

Review of Maritime Transport.

UNCTAD RMT 98/1: New York and Geneva.

UNCTAD (United Nations Conference on Trade and Development). 2005.

Review of Maritime Transport.

UNCTAD/RMT: New York and Geneva, 2005,

W

Williams, Mark Lloyd, Bill Jamieson, and Norton Rose. 1999.
“BOT Schemes and Port Development.” World Ports Development, p. 20.

World Bank. 1992.
Port Development Strategies for Asia, Phase 1.
National Ports and Waterways Institute, Louisiana State University.

World Bank. 1996.
Infrastructure Delivery: Private Initiative and the Public Good, Washington, DC: World Bank Economic Development Institute.

World Bank. 1996.
Sustainable Transport: Priorities for Policy Reform. Washington, DC: World Bank.

World Bank. 1997.
Toolkits for Private Participation in Water and Sanitation,
Module 1: Selecting an Option for Private Sector Participation. Washington, DC: World Bank.

World Bank Group.
“Procurement for Private Infrastructure Projects.”
World Bank Group, Washington, DC.

---. 1995a.
Bureaucrats in Business. The Economics and Politics of Government Ownership.
Washington, D.C.

---. 1995b.
"China: Labor Market Development Project."
Staff Appraisal Report 14602-CHA. Washington, D.C.

---. 1995c.
Labor Market Policies for Higher Employment.
Dhaka, Bangladesh.

---. 1996a.
"Brazil: Federal Railways Restructuring and Privatization Project."
Staff Appraisal Report 15580. Washington, D.C.

---. 1996b.
"Coal Pilot Project in the Ukraine."
Staff Appraisal Report 15351-UA. Washington D.C.

---. 1996c.
"Designing Project Monitoring and Evaluation."
Lessons and Practices 8.

Operations Evaluation Department, World Bank, Washington D.C.

---. 1996d.

"Morocco: Railway Restructuring Project."
Staff Appraisal Report 15988. Washington, D.C.

---. 1996e.

"Privatization in Zambia, 1993-95."
Africa Technical Department, Washington, D.C.

---. 1996f.

World Bank Participation Sourcebook.
Washington, D.C.

---.1996g.

"Major issues in transport and communication: Concepts and Guidelines for the Implementation of the Commercialization and Privatization of Ports."
Ports and Harbors (April).

---.1997a.

"Terminal velocity." Containerization International June, p. 95.

---. 1997b.

"Towards a New Role for the State in Uruguay's Utilities."
Report 16154-UY. Washington, D.C.

---. 1997c.

World Development Report.
Washington, D.C.

---.1998.

"Major issues in transport, communication, tourism and infrastructure development: Commercialization and Private sector Involvement in Ports."
Ports and Harbors (November)

---.1998.

"Les financements internationaux d'infrastructure: la fiscalité des BOT."
Les ECHOS 12 May.

---. 2000.

Port Reform Toolkit–Module 7: Port Labor Reform.
Washington, D.C.

---. 2001.

"Enhancing Public-Private Ownership in the Context Of the African Vision for Water(2025)."
In Political Economy of Water Sector Reform.
Volume 1, Summary of the Regional Conference on the Reform of the Water Supply and Sanitation Sector in Africa, Kampala, Uganda, February 26-28, 2001.

Water and Sanitation Programme, World Bank. Washington, D.C.

---. **2002.**

Public Communications Programs for Privatization: A Toolkit for Task Team Leaders and Clients.
Washington, D.C.

Glossary of Port and Shipping Terms

Backhaul

To haul a shipment back over part of a route that it has already traveled; return movement of cargo, usually opposite from the direction of its primary cargo destination.

Ballast keel

A heavy keel fitted to vessels to lower the center of gravity and improve stability.

Ballast tanks

Compartments at the bottom of a ship that are filled with liquids for stability and to make the ship seaworthy.

Beam

The width of a ship.

Berth

A place in which a vessel is moored or secured; place alongside a quay where a ship loads or discharges cargo.

Berth term

Shipped under a rate that does not include the cost of loading or unloading.

Berth dues (or quay dues or dockage)

Charges for the use of a berth. Typically assessed based on the duration of a vessel's stay and length overall (LOA).

Bill of lading

A document that establishes the terms of contract between a shipper and a transportation company. It serves as a document of title, a contract of carriage, and a receipt for goods.

Bond port

Port of a vessel's initial customs entry to any country; also known as first port of call.

Bonded warehouse

A warehouse authorized by customs authorities for storage of goods on which payment of duties is deferred until the goods are removed.

Breakbulk

Loose, noncontainerized cargo stowed directly into a ship's hold.

Broker

A person who arranges for transportation of loads for a percentage of the revenue from the load.

Build-operate-transfer (BOT)

A form of concession where a private party or consortium agrees to finance, construct, operate and maintain a facility for a specific period and transfer the facility to the concerned government or port authority after the term of the

concession. The ownership of the concession area (port land) remains with the government or port authority during the entire concession period. The concessionaire bears the commercial risk of operating the facility.

Build-own-operate-transfer (BOOT)

A form of concession where a private party or consortium agrees to finance, construct, own, operate and maintain a facility for a specific period and transfer the facility to the concerned government or port authority after the term of the concession. The ownership of the concession area (port land) vests in the private party or consortium during the entire concession period and is transferred to the government or port authority at the end of the concession period. As with the BOT, the concessionaire bears the commercial risk of operating the facility.

Bulkhead

A structure to resist water; a partition separating one part of a ship from another part.

Bulk vessel

All vessels designed to carry bulk cargo such as grain, fertilizers, ore, and oil.

Bunkers

Fuel used aboard ships.

Cabotage

Shipments between ports of a single nation, frequently reserved to national flag vessels of that nation.

Cargo tonnage

Ocean freight is frequently billed on the basis of weight or measurement tons. Weight tons can be expressed in terms of short tons of 2,000 pounds, long tons of 2,240 pounds, or metric tons of 1,000 kilograms (2,204.62 pounds). Measurement tons are usually expressed as cargo measurements of 40 cubic feet (1.12 cubic meters) or cubic meters (35.3 cubic feet).

Carrier

Any person or entity who, in a contract of carriage, undertakes to perform or to procure the performance of carriage by sea, inland waterway, rail, road, air, or by a combination of such modes.

Cartage

Intraport or local hauling of cargo by drays or trucks (also referred to as drayage).

Chassis

A frame with wheels and container locking devices to secure the container for movement.

Classification yard (also commonly known as a shunting yard)

A railroad yard with many tracks used for assembling freight trains.

Cleaning in transit

The stopping of articles (such as farm products) for cleaning at a point between the point of origin and destination.

Clearance

The size beyond which vessels, cars, or loads cannot pass through, under, or over bridges, tunnels, highways, and so forth.

Cleat

A device secured on the floor of a container to provide additional support or strength to a cargo-restraining device, or a device attached to a wharf to secure mooring lines.

Common carrier

A transportation company that provides service to the general public at published rates.

Concession

An arrangement whereby a private party (concessionaire) leases assets from a authorized public entity for an extended period and has responsibility for financing specified new fixed

investments during the period and for providing specified services associated with the assets; in return, the concessionaire receives specified revenues from the operation of the assets; the assets revert to the public sector at expiration of the contract.

Conservancy

In some countries, this fee is levied to retain upkeep of the approaches to waterways and canals.

Consolidation

Cargo consisting of shipments of two or more shippers or suppliers. Container load shipments may be consolidated for one or more consignees.

Container

Steel or aluminum frame forming a box in which cargo can be stowed meeting International Standard Organization (ISO)-specified measurements, fitted with special castings on the corners for securing to lifting equipment, vessels, chassis, rail cars, or stacking on other containers. Containers come in many forms and types, including: ventilated, insulated, refrigerated, flat rack, vehicle rack, open top, bulk liquid, dry bulk, or other special configurations. Typical containers may be 10 feet, 20 feet, 30 feet, 40 feet, 45 feet, 48 feet, or 53 feet in length, 8 feet or 8.5 feet in width, and 8.5 feet or 9.5 feet in height.

Container freight station

A dedicated port or container terminal area, usually consisting of one or more sheds or warehouses and uncovered storage areas where cargo is loaded (“stuffed”) into or unloaded (“stripped”) from containers and may be temporarily stored in the sheds or warehouses.

Container pool

An agreement between parties that allows the efficient use and supply of containers; a common supply of containers available to the shipper as required.

Container vessel

Ship equipped with cells into which containers can be stacked; containerships may be full or partial, depending on whether all or only some of its holds are fitted with container cells.

Container terminal

An area designated for the handling, storage, and possibly loading or unloading of cargo into or out of containers, and where containers can be picked up, dropped off, maintained, stored, or loaded or unloaded from one mode of transport to another (that is, vessel, truck, barge, or rail).

Container yard

A container handling and storage facility either within a port or inland.

Contraband

Cargo that is prohibited.

Contract carrier

Any person not a common carrier who, under special and individual contracts or agreements, transports passengers or cargo for compensation.

Controlled atmosphere

Sophisticated, computer controlled systems that manage the mixture of gases within a container throughout an intermodal journey, thereby reducing decay.

Customhouse

A government office where duties are paid, documents filed, and so forth, on foreign shipments.

Customs broker

A person or firm, licensed by the customs authority of their country when required, engaged in entering and clearing goods through customs for a client (importer).

Cut-off time (closing time)

The latest time a container may be delivered to a terminal for loading to a scheduled barge, vessel, train, or truck.

Daily running cost

Cost per day of operating a ship.

Deconsolidation point

Place where cargo is ungrouped for delivery.

Demurrage

A penalty charge against shippers or consignees for delaying the carrier's equipment beyond the allowed free time. The free time and demurrage charges are set forth in the charter party or freight tariff.

Dock or quay

A structure attached to land to which a vessel is moored.

Draft (or draught)

The depth of a ship while in the water. Measured as the vertical distance between the waterline and the lowest edge of the keel.

Dredging

Removal of sediment to deepen access channels, provide turning basins for ships, and maintain adequate water depth along waterside facilities.

Dry bulk

Loose, mostly uniform cargo, such as agribulk products, coal, fertilizer, and ores, that are transported in bulk carriers.

Dunnage

Material used in stowing cargo either for separation or the prevention of damage.

Electronic data interchange (EDI)

Transmission of transactional data between computer systems.

EDIFACT

Electronic Data Interchange for Administration, Commerce, and Trade. International data interchange standards sponsored by the United Nations.

Eminent domain

The sovereign power to take property for a necessary public use, with reasonable compensation.

Feeder service

Transport service whereby loaded or empty containers in a regional area are transferred to a "mother ship" for a long-haul ocean voyage.

Fixed costs

Costs that do not vary with the level of activity. Some fixed costs continue even if no cargo is carried; for example, terminal leases, rent, and property taxes.

Force majeure

The title of a common clause in contracts, exempting the parties from nonfulfillment of their obligations as a result of conditions beyond their control, such as earthquakes, floods, or war.

Foreign trade zone

A free port in a country divorced from customs authority, but under government control. Merchandise, except contraband, may be stored in the zone without being subject to import duty regulations.

Forty-foot equivalent unit (FEU)

Unit of measurement equivalent to one forty-foot container. Two twenty-foot containers (TEUs) equal one FEU.

Free trade zone

A zone, often within a port (but not always), designated by the government of a country for duty-free entry of any nonprohibited goods. Merchandise may be stored, displayed, or used

for manufacturing within the zone and reexported without duties being applied. Also referred to as free port.

Freight, demurrage, and defense

Class of insurance provided by a protection and indemnity (P&I) club that covers legal costs incurred by a shipowner in connection with claims arising from the operation of the ship.

Freight forwarder

Person or company who arranges for the carriage of goods and associated formalities on behalf of a shipper. The duties of a forwarder include booking space on a ship, providing all the necessary documentation, and arranging customs clearance.

Freight payable at destination

Method of paying the freight often used for shipment of bulk cargo, the weight of which is established on discharge from the ship.

Gantry crane

A crane fixed on a frame or structure spanning an intervening space typically designed to traverse fixed structures such as cargo (container) storage areas or quays and which is used to hoist containers or other cargo in and out of vessels and place or lift from a vessel, barge, trucks, chassis, or train.

Gateway

A point at which freight moving from one territory to another is interchanged between transportation lines.

Good international practice

Term used in contracts, meaning the exercise of that degree of skill, diligence, and prudence that would, in order to satisfy internationally accepted standards of performance, reasonably be practiced by an experienced person holding all applicable qualifications who is engaged in the same type or similar types of activity under the same or similar circumstances.

Grounding

Contact by a ship with the ground while the ship is moored or anchored as a result of the water level dropping, or when approaching the coast as a result of a navigational error.

Groupage

The grouping together of several compatible consignments into a full container load. Also referred to as consolidation.

Harbor dues (or port dues)

Charges by a port authority to a vessel for each harbor entry, usually on a per gross tonnage basis, to cover the costs of basic port infrastructure and marine facilities such as buoys, beacons, and vessel traffic management system.

Hand-over

Term used in contracts, meaning the process of providing exclusive, unencumbered, peaceful, and vacant possession of and access to a concession area and the existing operational port infrastructure and also all rights, title (free of all encumbrances and security), and interest in all the movable assets and all the facilities by the government or the port authority on the hand-over date for the conduct of terminal operations.

Harbormaster

An officer who is in charge of vessel movements, safety, security, and environmental issues within a port.

Heavy lift charge

A charge typically imposed when special lifting gear is required to handle a given piece of cargo, which may be of either heavy weight or of large dimensions (often referred to as “out of gauge” when dealing with container vessels).

Hold

A ship’s interior storage compartment.

In bond

Cargo moving under customs control where duty has not yet been paid.

Inducement

Placing a port on a vessel's itinerary because the volume of cargo offered by that port justifies the cost of routing the vessel.

Inland carrier

A transportation company that hauls export or import traffic between ports and inland points.

Intermodal

Movement of cargo containers interchangeably between transport modes where the equipment is compatible within the multiple systems.

Jetty (or pier)

A structure that is perpendicular or at an angle to the shoreline to which a vessel is secured for the purpose of loading and unloading cargo.

Jumboising

Conversion of a ship to increase cargo-carrying capacity by dividing and adding a new section.

Keel

A flat steel plate running along the center line of a vessel.

Knot

Measure of ship speed, equal to one nautical mile (1,852 meters) per hour.

LASH

Abbreviation for "lighter aboard ship." A specially constructed vessel equipped with an overhead traveling gantry crane for lifting specially designed barges out of the water and stowing them into the cellular holds of the vessel (loading) and unstowing (unloading) as well.

Loaded draught (or draft)

Depth of water to which a ship is immersed when fully loaded.

Landlord port

An institutional structure where the port authority or other relevant public agency retains ownership of the port land and responsibility for port planning and development, as well as the maintenance of basic port infrastructure and aids to navigation.

Lender's direct agreement

Agreement between parties to a concession or BOT agreement (government or port authority and special purpose vehicle [SPV] or terminal operator) and the lenders (usually banks or a consortium of banks) setting out the rights and obligations of the lenders in relation to the government or port authority regarding the facilitation of the financing of a port project. The lender's direct agreement is used in the event of a proposed termination of the concession agreement to induce the lenders to provide the debt to the SPV or operator under the financing documents. These rights and obligations usually comprise assignment rights with respect to the concession and the site lease agreement, priority rights with respect to repayment of the debt, and step-in rights in case of termination as a result of breach of contract by the SPV or operator.

Lighter

An open or covered barge towed or pushed by a tugboat or a pusher tug and used primarily in harbors and on inland waterways to carry cargo to or from the port.

Limited recourse financing

Project financing in which sponsors or governments agree to provide contingent financial support to give lenders extra comfort; typically provided during the construction and start-up period of a project, which is generally the riskiest time in the life of an infrastructure project.

Line haul

The movement of freight over the tracks of a transportation line from one location (port or city) to another.

Liner

A vessel sailing between specified ports on a regular basis.

Lloyds' Registry

An organization engaged in the surveying and classing of ships so that insurance underwriters and others may know the quality and condition of the vessels involved.

Longshoreman (or docker, port worker, or dock worker)

Individual employed locally in a port to load and unload ships.

Lo-lo (lift-on lift-off)

Cargo handling method by which vessels are loaded or unloaded by either ship or shore cranes.

Malacca-max

Maximum size of container and bulk vessels (in terms of draught) that can cross the Malacca Straits. The Malacca-max reference is believed to be today the absolute maximum possible size for future container vessels (approximately 18,000 TEU).

Main port

A large multipurpose port serving a number of countries and regions.

Management contract

An arrangement whereby the operation and management of a facility is contracted by the public authority to a specialized operator for a specified period and under specified conditions relating to performance criteria, economic incentives, and maintenance and infrastructure commitments. The public authority retains

ownership of the facility and the commercial risk associated with its operation.

Mezzanine financing

A mix of financing instruments, including equity, subordinated debt, completion guarantees, and bridge financing, the balance of which changes as the risk profile of a project changes (that is, as a project moves beyond construction into operation).

Mixed cargo

Two or more products carried on board one ship.

Mobile crane

General purpose crane capable of moving on its own wheels from one part of a port to another.

Moor

To attach a ship to the shore by ropes.

Neobulk cargo

Non-, or economically not feasible, containerizable cargo such as timber, steel, and vehicles.

Nonrecourse financing

Project financing for which no loan guarantees or financial support is provided by the sponsors or governments to lenders for the project.

Nonvessel operating common carrier (NVOCC)

A cargo consolidator in ocean trades who buys space from a carrier and resells it to smaller shippers. The NVOCC issues bills of lading, publishes tariffs, and otherwise conducts itself as an ocean common carrier, except that it does not provide the actual ocean or intermodal service.

On-carrier

Person or company who contracts to transport cargo from the port or place of discharge of a sea-going or ocean-going ship to another destination by a different means of transport, such as a feeder vessel, truck, train, or barge.

Optional cargo

Cargo that is destined for one of the ship's discharge ports, the exact one not being known when the goods are loaded.

Overcarriage

The carriage of cargo beyond the port for which it was intended.

Pallet

A flat tray, generally made of wood, but occasionally steel or other materials, on which goods can be stacked. There are two principal sizes: the ISO pallet, which measures 1 x 1.2 meters, and the europallet at 0.8 x 1.2 meters.

Panamax

Maximum beam that allows vessels to pass through the locks of the Panama Canal (specifically used for dry bulk and container vessels).

Permanent dunnage

Strips of timber fixed to the frames of a ship to keep cargo away from the sides of the ship to avoid damage and condensation.

Pilferage

Stealing of cargo.

Pilotage

The act of assisting the master of a ship in navigation when entering or leaving a port or in confined water.

Pilotage dues

Fee payable by the owner or operator of a ship for the services of a pilot; the fee is normally based on the ship's tonnage, draft, or length.

Platform (or flat)

A shipping container without sides, ends, or a roof. Normally 20 or 40 feet long, it is used for awkwardly shaped cargo that cannot fit on or in any other type of container.

Plimsoll mark/load lines

A series of horizontal lines and a circle with a horizontal line painted amidships of both sides of the hull of a ship marking the level that must remain above the surface of the water for the vessel's stability.

Pontoon

Flat-bottomed floating structure with a shallow draught.

Pooling

Sharing of cargo or the profit or loss from freight by member lines of a liner conference.

Port dues (or harbor dues)

Charges levied against a shipowner or ship operator by a port authority for the use of a port (see also harbor dues).

Port of refuge

Port, not on a ship's itinerary, which the ship calls at due to some unforeseen hazard at sea and where the ship may undergo repairs, refuel, or rescue cargo.

Port of registry

Place where a ship is registered with the authorities, thereby establishing its nationality.

Preentry

Presentation to the customs authorities of export or import declarations prior to the clearance of goods.

Project financing

Financing wherein the lender looks to a project's cash flows to repay the principal and interest on debt, and to a project's assets for security; also known as "structured financing" because it requires structuring the debt and equity such that a project's cash flows are adequate to service the debt.

Rail-mounted gantry (RMG) or rail-mounted container gantry crane

Rail-mounted gantry crane used for container acceptance, delivery, and stacking operations in a container yard.

Reefer

Refrigerated container or vessel designed to transport refrigerated or frozen cargo.

Relay

To transfer containers from one ship to another.

Ro/ro

A shortening of the term “roll-on roll-off.” Ro/ro is a cargo handling method whereby vessels are loaded via one or more ramps that are lowered on the quay.

Rubber-tired gantry (RTG) or rubber-tired container gantry crane

Gantry crane on rubber tires typically used for acceptance, delivery, and container stacking at a container yard.

Shed (also see warehouse)

Covered area for the reception, delivery, consolidation, distribution, and storage of cargo.
Note: A warehouse usually points at longer term storage, whereas a shed usually is used for shorter term storage.

Ship chandler

An individual or company selling equipment and supplies for ships.

Ship's tackle

All rigging and so forth used on a ship to load or unload cargo.

Side loader

A lift truck fitted with lifting attachments operating to one side for handling containers.

Spotting

Placing a container where required to be loaded or unloaded.

Spreader

A piece of equipment designed to lift containers by their corner castings.

Stackcar

An articulated multiple platform rail car that allows containers to be double stacked.

Stacktrain

A rail service whereby rail cars carry containers stacked two high on specially operated unit trains.

Stevedore

Individual or firm that employs longshoremen (or dockers, dock workers, or port workers) to load and unload vessels.

Stevedoring charges

Fees for loading and stowing or unloading a ship.

Sto-ro

A vessel with capacity for breakbulk cargo as well as vehicles or trailer borne cargo.

Stowage factor

The average cubic space occupied by one ton weight of cargo as stowed aboard a ship.

Straddle carrier

Type of equipment that picks up and transports containers between its legs for movement within a container terminal.

Stripping (unstuffing)

Unloading of a container.

Supply chain

A logistics management system that integrates the sequence of activities from delivery of raw

materials to the manufacturer through to the delivery of the finished product to the customer in measurable components.

Tare weight

The weight of wrapping or packing; added to the net weight of cargo to determine its gross weight.

Terminal charge

A charge made for a service performed in a terminal area typically referring to handling associated with receipt, delivery, or inspection of cargo via land-based operations.

Throughput charge

The charge for moving a container through a container yard off of or onto a ship.

Top off

To fill a ship that is already partly loaded with cargo. Typically occurs where there is a draught restriction at the first load port—the ship loads a quantity of cargo corresponding to the permissive draught, then fills up at the second port where there is no restriction.

Top stow cargo

Goods that are stowed on top of all others in a ship's hold because of their relatively low density and the probability that they would be damaged if overstowed.

Toplifter

Forklift truck capable of lifting a container by means of its spreader.

Towage

Charges for the services of tugs assisting a ship or other vessels in ports.

Tramp line

An ocean carrier company operating vessels on other than regular routes and schedules.

Transshipment

A distribution method whereby containers or cargo are transferred from one vessel to another

to reach their final destination, compared to a direct service from the load port of origin to the discharge port of destination. This method is often used to gain better vessel utilization and thereby economies of scale by consolidating cargo onto larger vessels while transiting in the direction of main trade routes.

Transshipment port

A port where cargo is transferred from one carrier to another or from one vessel of a carrier to another vessel of the same carrier without the cargo leaving the port.

Turnaround time

The time it takes between the arrival of a vessel and its departure from port; frequently used as a measure of port efficiency.

Twenty-foot equivalent unit (TEU)

Container size standard of twenty feet. Two twenty-foot containers (TEUs) equal one FEU. Container vessel capacity and port throughput capacity are frequently referred to in TEUs.

Unitization

The consolidation of a quantity of individual items into one large shipping unit for easier and faster handling through methods such as palletizing, stripping, slinging and containerization.

Unloader

Port equipment employed to unload ships carrying dry bulk cargo. (*Note:* Small movable and hoistable unloaders are sometimes referred to as “vacuators.”)

Unmoor

To remove the ropes that attach a ship to the shore.

Unstuffing (or stripping)

Unloading of a container.

Variable cost

Costs that vary directly with the level of activity within a short time. Examples include costs of

moving cargo inland on trains or trucks, stevedoring in some ports, and short-term equipment leases.

Vessel manifest

Declarations made by international ocean carriers relating to the ship's crew and contents at both the port of departure and arrival. All bills of lading are registered on the manifest.

Vessel traffic management system

Vessel control and management system (VTMS) usually under the authority of the harbormaster, comprising equipment (such as radars, tracking software, and radio communications), personnel (traffic operators), and regulations. Most larger maritime ports have relatively advanced vessel traffic management systems for maritime safety, protection of the environment, and coordination of marine services.

Warehouse (see also shed)

Covered area for the reception, delivery, consolidation, distribution, and storage of cargo.

Note: A warehouse usually points at longer term storage, whereas a shed usually is used for shorter term storage.

Waybill

Document, issued by a shipping line to a shipper, which serves as a receipt for the goods and evidence of the contract of carriage.

Wharf

Structure built alongside the water or perpendicular to the shore where ships berth for loading or discharging goods.

Wharfage

The charge that an owner of a facility (terminal or port) charges for the movement of cargo through that facility.

Sources: Brodie, Peter. *Dictionary of Shipping Terms*, Third Edition, 1997, and Sullivan, Eric, *The Main Encyclopedic Dictionary*, Fifth Edition, 1996.

