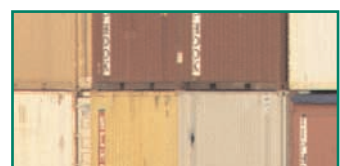




**WORLD BANK
PORT REFORM
TOOL KIT**

M O D U L E 3

ALTERNATIVE PORT MANAGEMENT STRUCTURES AND OWNERSHIP MODELS



The Port Reform Toolkit could be elaborated thanks to the financing 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

The Port Reform Toolkit Modules have been prepared with the contributions of the following organizations, under the management of the World Bank Transport Division:

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)

AXELCIUM – Ingenierie et Regulation Financiere (France)

Nathan Associates (USA)

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

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STRUCTURES & OWNERSHIP MODELS

OBJECTIVES AND OVERVIEW

This Module, the third of seven 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 situa-

tions. 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 as a result of the strategic shifts and competitive pressures affecting the maritime sector. These developments are described in Module 2 in detail.

Module 3 is organized into seven sections, including this overview.

The section titled "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 management. The section also describes a number of public interest



issues affecting port planning, port operations and infrastructure development.

The section titled “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.

The next section focuses on the important subject of port finance, a topic that is dealt with at greater length in Module 5. 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.

The section titled “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 market place. The process of structural change can be a painful one, with the potential for costly mistakes to be made. 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 on port development also facilitates the introduction of efficient models and structures all over the world. Although there still is a large diversity of port management and organizational structures, the trend towards several successful port management models is strong.

The next section analyses the reform tools that port managers can use. The role of governments 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 governments 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 different from port to port and from country to country.

The final section 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 which alternatives might best fit a port's particular circumstances.

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 efficient distribution chains of which they are an essential component. Three main problems contributed to the gradual deterioration of service quality (illustrated by port congestion and consequent chronic service failures) during this period.

The first 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 break-bulk 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 dockworkers 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 as 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 main reason for a lack of port service quality was the inability or



unwillingness of many governments to invest in expensive port infrastructure or the "mis-investment" in infrastructure (i.e., to provide 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.

During this period, fundamental questions arose about the appropriate division of responsibilities between the public and private sectors. So-called "boundary line" issues came into sharp focus during the 1980s. Policy makers became increasingly aware of the need for co-ordination 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" (i.e., goods and services that the private sec-


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. The terminal was constructed and fully equipped in the 1970s 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 twenty years later, Damietta is one of the leading container ports in the region competing with terminals in Italy, and on Malta and Cyprus. 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 petro-chemical 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, as such, does not guarantee success when there is no natural hinterland generating significant cargo flows and when the port does not attract large-scale hub traffic.

tor has no adequate incentive to provide and, consequently, are under-supplied 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 and regulator, whereas the private sector acts as service provider, operator and 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 result in:

- Increased service levels for infrastructure users;
- Increased efficiency in operations; and
- 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 "green field" container terminals have been built with private capital and other container terminals have been re-developed and re-capitalized through some form of privatization. Box 2 presents two of the institutional formats used in recent years to develop "green field" terminals.

Increasingly, ports are being integrated into global logistics chains, and the public benefits they provide are taking on regional and global attributes. At the dawn of the 21st century 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

Box 2

Institutional Formats of "Green Field" 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% foreign investment and 70% 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 comprised the following proportions:

- Omani Government: 20%
- Government pension funds: 11%
- Sea-Land Services: 15%
- Omani private investors: 19%
- Public offering: 20%
- Maersk / A.P. Moller: 15%.

The initial capitalization was US \$260 million. The Government built the infrastructure. Container Terminal at Vadhavan, India

Vadhavan, India

In February 1997 P&O Ports Ltd. was selected by the Government of the State of Maharashtra to head a consortium to develop a US\$ 950 million "green field" deep water oil and container port at Vadhavan (North of Mumbai). The participants were:

- Maharashtra Government: 11%
- ICICI: 11%
- Jakari Terminals: 4%
- Meherji Cassinath: 2%
- P&O Ports and other private investors: 72%.

The future of this project is uncertain, however, since the Environmental Protection Authority ruled that the project was illegal.



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 have challenges in defending "public" and local interests. The full implications of these developments on port management and structure are not yet clear and will emerge only with time.

PORT FUNCTIONS, SERVICES AND ADMINISTRATION MODELS

Overview

Ports produce a combination of public and private goods. Public goods include those that are inherently non-divisible and non-consumable, such as coastal protection works necessary to create port basins. 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. A substantial portion of the value of public goods, on the other hand, 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 produced.

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. Box 3 lists a number of areas where ports generate economic multiplier effects.

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



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 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, by reducing transaction costs among them, by driving technological innovation, and by 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 including those in Rotterdam, Yokohama, Antwerp, Hamburg, Marseilles and Houston, to name but a few. In the 1970s, the larger European ports targeted refineries and chemical industries for co-location and co-development, 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. A second

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 co-development of various value added services through franchising, licensing, and incentive leasing. Today, ports aim at attracting enterprises that extend their logistics chains or provide them with specialized capabilities to add value to cargos 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 co-investment 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 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, by competition for land, for 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,

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 re-packing, 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 area of the Port of Rotterdam.

Trade, Distribution and Marketing Centers (TDMCs)

TDMCs in Rotterdam are specialized centers where traders and manufacturers from non-European countries meet and trade with their European counterparts and with each other. The TDMCs are concentrated in Rotterdam's Euro Trade Park.

The TDMCs enable participating manufacturers to tune into local markets and requirements. Each TMDC represents a concentration of know-how, products, markets, professionals, financial resources, technologies, government agencies and other institutions. Each Center is specialized in different areas of industry, geographic areas and particular expertise.



differing primarily in where the 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 what this report will refer to as a Service Port. At the other end, the almost total absence of public ownership, control or regulatory oversight results in a Fully Privatized Port.

The alignment of public and private interests in recent years has resulted in a diminishing role for governments in the port industry. This trend is clear. The total absence of public involvement in the port sector, however, still remains an exception, limited primarily to situations in which surplus port capacity may exist in a national market and where competition for port services is already intense.

When governments undertake 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 non-market 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 anti-competitive 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 pro-competitive 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 done through licensing, leasing, concessioning, and other methods designed to bring about an efficient allocation of resources. This market surrogate view of the role for government in the port sector is followed in most countries with market oriented economic policies.

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 (e.g., 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 underutilized capacity during the earlier phases of a project's lifecycle.

- 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.

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 port city objectives and port objectives. Transport integration – the smooth transfer of cargo and equipment from land to water-borne systems – is an essential port function; but it doesn't take place in isolation. A seaport node within a multi-modal 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 the operational scale and scope. This leads to increased storage space requirements and makes 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 tracts 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 re-location have left substantial areas available for redevelopment for other purposes. Such areas are often located near city centers, since 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 (ABP) 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/municipality for redevelopment. In practice this is not always effective, as the municipality might lack the resources to realize the full value of the land in question. On the other hand, there are examples (e.g., Baltimore and Rotterdam) of the 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 is the London Docklands Development Corporation (LDDC) created to redevelop the old docks of the port of London. The LDDC was created 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 dock's 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).

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 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 facili-



ties and, in certain circumstances, for security." This definition is sufficiently broad to accommodate the various port management models existing within the European Union and elsewhere.

The 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; 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 qualification for promotion; power to approve common labor union procedures;
- Licensing: When appropriate, power to establish principles for licensing of port employees, agents, etc.;
- 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; and
- 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 macro-economic 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; and
- Avoid dissipation of the Port Authority's asset base to satisfy objectives of third parties (e.g., port users demanding the use of land in the port area without regard to the land's most economic use; 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 would be better able to pursue other-than-financial objectives considered desirable by the government or by itself.

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 micro-economic 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.

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 coastline defenses (shore protection), port entrances, lighthouses and aids to navigation, navigable sea routes and canals;
- Planning and development of ports (location, function, type of management).
- Planning and development of port hinterland connections (roads, railways, waterways, 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 (e.g., SOLAS, Law of the Sea, MARPOL) into national legislation.

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. It should be able to carry out financial and economic analyses and assess the socio-economic and financial feasibility of projects in the context of national policies and priorities.

Auditing. Auditing 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; e.g., 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, licensing of seafarers);
- Ports (execution of national ports policy);

- Hydro-technical construction (construction of protective works, sea-locks, port entrances, etc.);
- Vessel Traffic Systems and Aids to Navigation (construction and maintenance); and
- Search and Rescue.

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;
- 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; and
- Provider of ancillary activities.

In view of the strategic significance of port land, port land is rarely sold outright to private parties because of its intrinsic value and scarcity. Therefore, a key role for many Port Authorities, is that of landlord with the responsibility to manage the real estate within the port area. This management includes the economic exploitation, the long-term development of the land 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. It 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 by-laws, comprising a multitude of rules and regulations with respect to the behavior of vessels in port, use of port areas, etc. Often, extensive police powers are also part of Port Authorities' powers.

The planning function of the Port Authority in co-ordination 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 his/her 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, roads, etc.);
- 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 macro-economic considerations. Integration of individual master plans may call for changes in some ports' plans to:

- Avoid duplication of expensive, technologically advanced facilities when different ports in a national system strive to attract the same customers; and
- Select the appropriate location 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 co-ordinates all services necessary



to berth and un-berth a vessel. These services include pilotage, towage, mooring and un-mooring, and vessel traffic services (VTS). In view of its general safety aspects, the Harbormaster's function has a public character. Often, the Harbormaster is also charged with a leading role in management of shipping and port-related crises (e.g., collisions, explosions, natural disasters, discharge of pollutants).

The cargo-handling and storage function comprises all activities related to loading and discharging seagoing and inland vessels, including warehousing and intra-port 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 two types of cargo handling and terminal operating firms:

- Firms that own and maintain all superstructures at a terminal (e.g., offices, sheds warehouses, cranes, forklifts, conveyor belts); and
- Firms that use superstructure and rolling stock owned by the Port Authority; such firms only employ stevedores 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 both for the Port Authority to attract new clients and for the ports industry to generally promote

its business. This type of broad port 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 towage and ship-chandling, 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 exception of towage. In a number of smaller ports, however, these are part of the Port Authority operations because of the limited traffic base.

Port Administration Models

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

- The socio-economic structure of a country (e.g., market economy, open borders);
- Historical developments (e.g., former colonial structure);
- Location of the port (e.g., within an urban area, in isolated regions); and
- Types of cargoes handled (e.g., liquid and dry bulk, containers).

Four main categories of ports have emerged over time. They can be classified into four main models:

- Service Port;
- Tool Port;
- Landlord Port; and



- 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 (in particular ship-to-shore handling equipment and warehouses); and
- 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.

Service ports have a predominantly public character. Many ports in developing countries are still managed according to this model (e.g., India, Sri Lanka). Under it, the Port Authority offers the complete range of services required for the functioning of the sea-port 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 (and/or Communications) and the Chairman (or Director General) is a civil servant appointed by, and/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 co-operate in the same operational environment, constitutes a serious management challenge. For this reason the Port Authorities and Cargo Handling Companies of Mombassa, Kenya, and Tema, and Takoradi, Ghana, were merged into one single entity.

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, forklift trucks, etc. Port Authority staff usually operates all Port Authority-owned equipment. 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. "Ports Autonomes" in France is an example of a container terminal managed and operated as a tool port, although for more recent terminals the private terminal operator has 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 ship owner 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 under-utilization 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: cargo-handling 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.

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 and/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 (e.g., land reclamation and quay wall construction). The private port operators provide and maintain their own superstructure including buildings (e.g., offices, sheds, warehouses, Container Freight Stations, workshops). They also purchase and install their own equipment on the terminal grounds (e.g., quay cranes, transtainers, conveyor belts) 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 port-wide labor pool system.

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 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, contrary to the situation in other port management models. This requires the transfer of ownership of such land from the public to the private sector. Additionally, 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 UK, for example, privatized ports are essentially self-regulating. The risk in this type of arrangement is that port land can be sold or re-sold for non-port activities, thereby making it impossible to reclaim for its original maritime use.

The decision to move to full privatization in the UK was made for three main reasons:

- To modernize institutions and installations, both of which often dated back to the early years of the industrial revolution, making 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; and
- 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 summarizes the sectors (public or private) with which various responsibilities typically lie under the four basic port management models.

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 emerged 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 vis-à-vis some of their major clients.

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 largest carriers. For example, how should a port respond if a large container operator demands to



Box 5

Strong and Weak Points of Port Management Models

Public Service port:

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

Weakness: There is no 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 under-investment as a result of government interference and dependence on government budget.
Operations are not user-oriented or market-oriented
Lack of innovation.

Tool Port:

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

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

Landlord Port:

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

Fully Privatized Port:

Strength: 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.

Weakness: Government may need to create a Port Regulator to control monopolistic behavior.
The Government (be it 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 re-develop 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.



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 Private

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/logistics chain by one consortium (a global monopolist) is not a desirable development. Because of regulatory measures by the United States and the European Union, the complexity of the transport/logistics chain and the number of players, a carrier's ability to control of the full chain seems 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 number of TEUs this represents, and the number of TEUs under construction.

Competition between major alliances is intense. The scale of investment in a new generation of container vessels represents a massive commitment. To fill these vessels the alliances try to secure local control and co-ordination 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 inter-port 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 dedicat-

Box 7

Major Container Carriers as of September 2000

1. Maersk/Sealand: operating 298 vessels (682,000 TEUs), 139,000 TEUs under construction.
2. Evergreen Group: operating 134 vessels (318,000 TEUs), 91,000 TEUs under construction.
3. P&O Nedlloyd: operating 124 vessels (302,000 TEUs), 112,000 TEUs under construction.
4. Hanjin/DSR Senator Line: operating 80 vessels (246,000 TEUs), 39,000 TEUs under construction.
5. Mediterranean Shipping Co: operating 130 vessels (229,000 TEUs), 76,000 TEUs under construction.

Source: Mainport News Rotterdam (October 2000) / Barry Rogliano Salles-Alphaliner.



ed facilities while other, smaller lines are accommodated at common user terminals. Without such dedicated facilities, major lines would move to other competing ports. Examples of this category of ports are 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% of the traffic could be lost. Examples of such ports are Algeciras and Salalah.

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 serves the Caribbean, Central and South America as a hub. Competitors are Kingston and Freeport (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 Rotterdam, Antwerp and Singapore. Such ports have a very well developed container sector with operators (PSA in Singapore, HN and NN in Antwerp and ECT in Rotterdam) that heavily invested in modern equipment and automation. They usually operate common user facilities and occupy a stronger market position than their immediate competitors for the very largest container vessels. Container terminal operators in such ports resist moves to develop dedicated carrier terminals that would upset

the present system and undermine the profitability of the existing common user terminals. Pressures at the major ports to accept dedicated terminals are intense. How long even major ports can resist such pressures depends not only on their competitive position but also on the operational and financial strength of the local terminal operators. A hybrid arrangement has surfaced in recent years, namely a dedicated terminal operated as a joint venture (e.g., ECT (with Maersk, Sealand and P&O Nedlloyd in Rotterdam) and Hessenatie (with MSC/CP in Antwerp)). When confronted with the serious possibility of losing a substantial quantity of their throughput, Port Authorities may be compelled to yield to the demands of the major container line alliances. This was recently the case in Rotterdam, where the Port Authority allowed Maersk Sealand and P&O Nedlloyd to run their own dedicated terminals.

Apart from major container lines, a limited number of global stevedore companies have emerged during the 1990s. The largest of these are:

- Hutchison Port Holdings (Hong Kong)
- P&O Ports (Australia)
- International Container Terminal Services (Philippines)
- Stevedoring Services of America (United States)
- PSA Corporation Ltd. (Singapore).
- Eurogate (Germany).

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 Hutchinson International bought 49% of the shares of ECT. The European Commission decided to refuse permission for this transaction on the grounds that this would have allowed Hutchinson to establish a dominant market-position in Northwest Europe since Hutchinson already owned Felixstowe, Thamesport and Harwich.

Box 8 lists some of the principal global port operators and the container terminals they operated or participated in at the beginning of the Year 2000.

Port Management and Port 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/cargo-handling companies. 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 inter-port competition (competition between dif-

ferent ports) and intra-port competition (competition between different enterprises within one port complex). To reduce the risk of monopolies, Port Authorities usually stimulate intra-port 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.

Box 8

Principal Global Container Terminal Operators

Hutchinson International Terminals (HIT)

Balbao and Cristobal (Panama), Freeport (Bahamas), Thamesport, Felixstowe and Harwich (UK), Rotterdam (The Netherlands), Hongkong, Yantian and Shanghai (China), Rangoon (Myanmar), Tanjung Priok (Indonesia)

International Container Terminals Systems Inc. (ICTSI)

Veracruz, Ensenada and Manzanillo (Mexico), Buenos Aires (Argentina), Damman (Saudi Arabia), Karachi (Pakistan), Laem Chabang (Thailand), Manila (Philippines) and Dar-es-Salaam (Tanzania)

Maersk/Sea-Land

Tacoma, Oakland, Long Beach, New Jersey, Norfolk, Charleston and Jacksonville (USA), Algeciras (Spain), Gioao Tauro (Italy), Rotterdam (The Netherlands), Kaohsiung (Taiwan), Yokohama and Kobe (Japan)

P&O Ports

Various terminals in China (including Qingdao), various terminals in Australia, Southampton and Tilbury (UK), Cagliari (Italy), Derince (Turkey), Buenos Aires (Argentina), Qasim (Pakistan), Nhava Sheva, Cochin, Chennai and Kandla (India), Colombo (Sri Lanka), Manila (Philippines), Surabaya (Indonesia) as well as Gulf Services (USA) and South Asia Ports (Malaysia)

PSA Corporation

Dalian, Fuzhou, Nantong (China), Aden (Yemen), Pipapav and Tuticorin (India), SinesPortugal, and Genova (Italy)

Source: Journal of Commerce/Atas (Trainmar) News number 02/00 – Edition 78



Key factors affecting inter-port 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 land-side expansion possibilities;
 - Proximity to major production/consumption areas;
 - Good hinterland connections (road, rail, pipeline and waterway) with high frequency service offering good connectivity.
- **Financial Resources.** A port with sufficient financial means of its own and/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 Socio-economic Climate.** The management structure of the port must be conducive to private sector investment. Related to this is the socio-economic climate in the port. Private investors prefer ports with a sufficient and well-trained labor force and with 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 9 summarizes the key elements influencing port competition.

Port Sector Regulator

When inter-port competition is muted or absent, Port Authorities and/or public or private terminal owners are apt to use their monopoly market positions to raise tariffs (in particular for captive cargos), 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 anti-competitive practices.

A Port Sector Regulator typically has legal powers to counter anti-competitive practices, such as:



- Use of a dominant position to prevent or lessen competition;
- Cross subsidization by 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 anti-competitive abuses since their traf-

fic volumes limit the number of container, bulk or 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.

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

Box 9

Elements Influencing Inter-port Competition

Inland Transport System

The inland transport system (road, rail, waterway, pipe-line) 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 (sea-sea transfer of cargo)

Transshipment of cargo, in particular of containerized cargos, is a major market chased by many, if not almost all, major ports of the world. Transshipment has the advantage that it generates additional traffic (two moves for one box); it has 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. As 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 (MTOs)

Freight forwarders and Multimodal Transport Operators play a decisive role in today's transport evolution, in particular within the framework of the door-to-door transport of commodities. As transport and distribution specialists, they greatly influence port choice and inter-port competition.

Freight Forwarders/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 contributed to the loss of identification with and loyalty to specific ports on the part of the consignees and shippers. Freight Forwarders and MTO's often have representative offices in competing ports.

Switching ports is much easier to achieve for transport specialists like Freight Forwarders/MTOs than it is for shippers and consignees. In addition, as consolidators of small consignments and shipper representatives, they are relatively strong vis-a-vis transport providers and other relevant parties, which makes modification of transport routings easier. Assisted by Freight Forwarders/MTO's, large shipping lines now can change the ports-of-call with much less difficulty.



of the economic regulation of ports see Module 6.

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 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 so-called 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 the port's 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." Box 10 identifies a number of them.

Value Added Services can be divided into Value Added Logistics (VAL) and

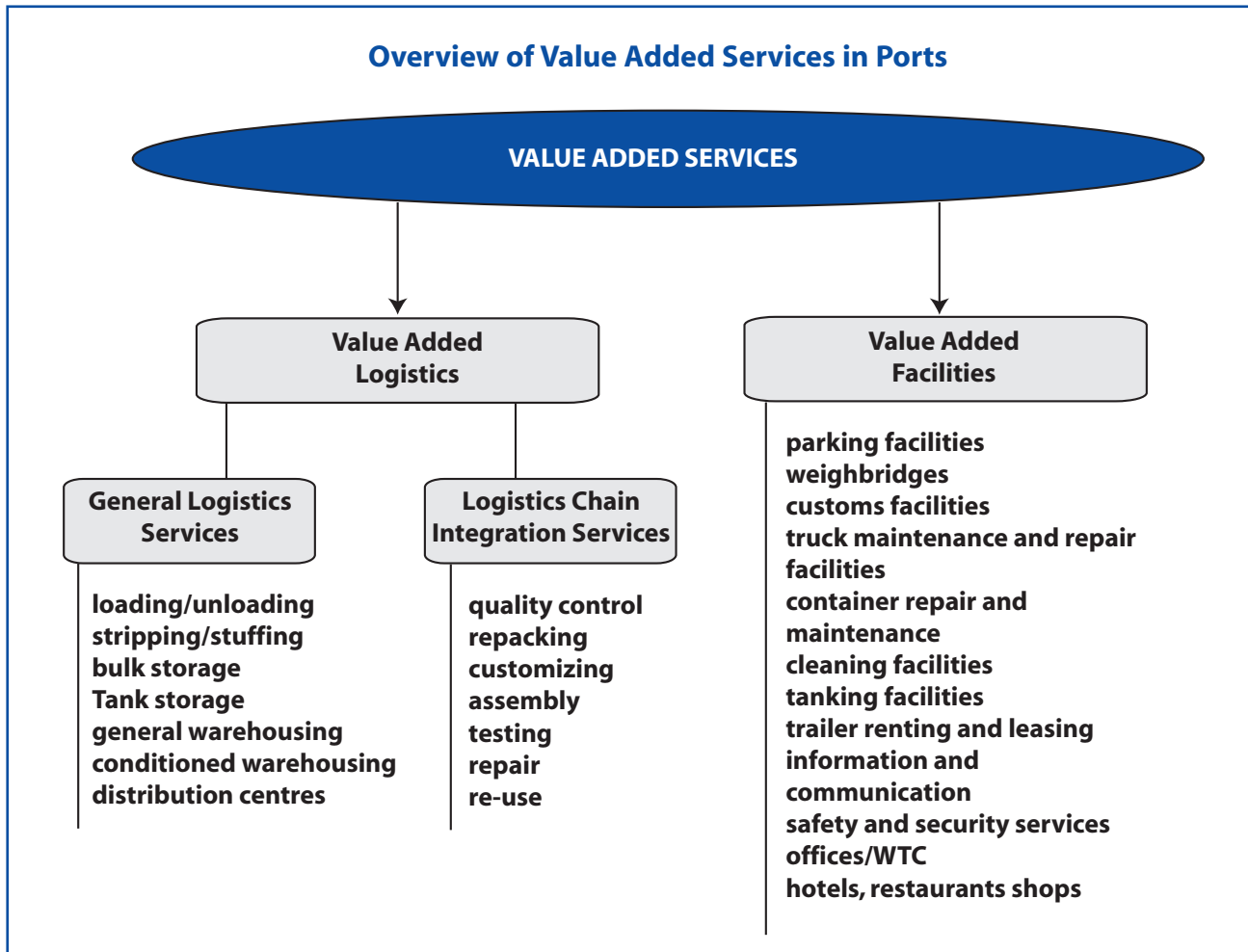
Value Added Facilities (VAF). Value Added Logistics has two major components: General Logistics Services (GLS) and Logistics Chain Integration Services (LCIS).

General Logistics Services are, among other activities, loading/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 Logistics Chain Integration Services are being developed. To carry out activities that manufacturers do not consider part of their core business, logistics service providers may take over parts of the production chain (e.g., assembly, quality control, customizing and packing) and after sales services (e.g., repair and re-use). 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 Value Added Services -- Value Added Facilities (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

Box 10



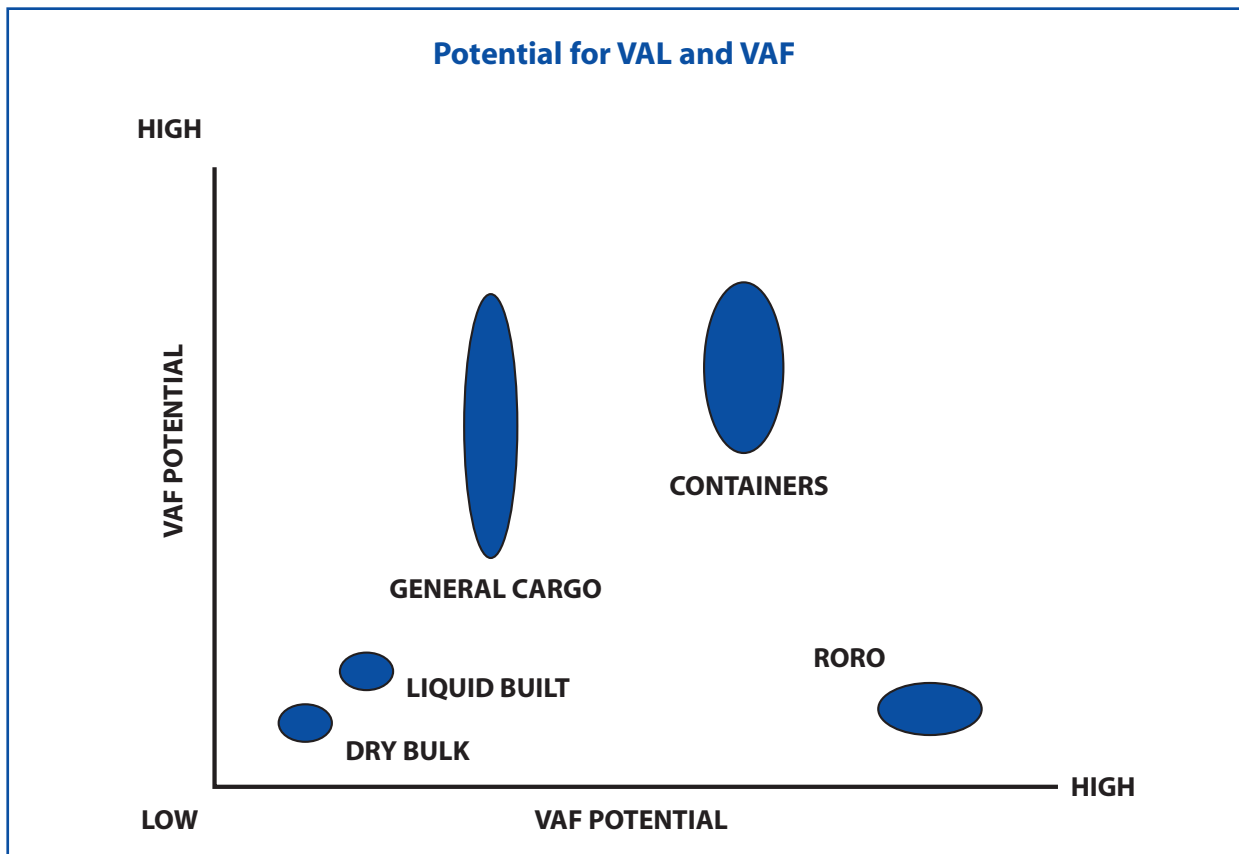
throughput might create the economic basis for establishing container repair facilities; handling vast quantities of chemicals requires port reception facilities; substantial roll-on/roll-off traffic might justify truck maintenance and repair shops.

Box 11 broadly depicts the potential for both VAL and VAF activities for different types of cargos.

Containerized and general cargos typically have the highest VAL-potential. General Logistics Services and the

Logistics Chain Integration Services have the best opportunity to serve these cargos. 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. Value Added Facilities, 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.

Box 11



To provide a favorable environment for VAL and VAF, many ports are developing so-called Distriparks. A Distripark is an area where companies are established to perform trade and transport-related value added services. There is no standard development plan for a Distripark. As can be seen from the various developments in the Netherlands, France, Germany and the United Kingdom, 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 cargos, and

includes large warehouses containing goods for Europe-wide distribution (e.g., Reebok).

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 International



Financial Institution 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 maritime and port infrastructure depends 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. If ports are assumed to be independent economic entities, however, they have to fully bear their own costs without direct Government support.

In some countries, financing basic maritime infrastructure is considered a public task (e.g., in France and Croatia) because this part of infrastructure belongs to the so-called "public domain," which is protected by law. To carry out construction activities and/or port operations in this domain, a public license is required. This requirement could reduce intra-port 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 about 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 port infrastructure construction, especially for port land, quay walls, common areas and inner channels, should be avoided.

Box 12 summarizes the European Union's views and this latter point.

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 (e.g., breakwaters and locks, entrance channels and fairways, and land reclamation). The main stumbling block for private financing of such projects is their life span, which often exceeds 100 years, and the "sunk invest-

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.

Box 12

European Rules on Port Subsidies

Beginning in the 1960s heated discussions took place in Europe on the issue of port subsidization. Especially the UK 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. Art. 93 para. 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 socio-economic 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 in operational infrastructure are not selective enough to be considered State subsidy. Investments in operational infrastructure have to be reported to the Commission.

Investments in a dedicated terminal that are not fully charged to the client are considered illegal State subsidies and are not allowed.

ment" aspect of these projects. Cost recovery of such works often cannot be effectuated in 20 years, which is a normal repayment period for long-term loans for infrastructure works by International Finance Institutions. Nevertheless, the second and third-

Caution is warranted, however, whenever Governments contemplate underwriting such investments.

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 us decide which investments should be paid for by the port, which should be paid for by the local or regional community, the central government and private investors. Box 13 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 is discussed below.

In many countries, the Government is responsible for financing basic infrastructure, either directly or through a contribution to offset its cost when undertaken, for example, by a Highway Authority or a Port Authority. For example, 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.

For the Government there are two key issues associated with making large direct investments in port facilities:

- How to find the necessary funds;
- How to recover the investment.

Box 13

Categories of Port Assets

Basic Port Infrastructure:

- maritime access channels
- port entrance
- protective works including breakwaters, shore protection
- sea locks
- access to the port for inland transport (roads, tunnels, etc.)
- rail connection between the hinterland and the port
- inland waterways within the port area.

Operational Port Infrastructure:

- inner port channels, turning and port basins
- revetments and slopes
- roads, tunnels, bridges, locks in the port area
- quaywalls, jetties and finger piers
- aids to navigation, buoys and beacons
- hydro/meteorological systems
- specific mooring buoys
- Vessel Traffic Management System (VTMS)
- patrol/fire fighting vessels
- docks
- port land (excluding superstructure and paving)
- access roads to general road infrastructure
- rail connection to general rail infrastructure, marshalling yards
- dry-docks for ship repair.

Port superstructure:

- paving, surfacing
- terminal lighting
- parking areas
- sheds, warehouses and stacking areas
- tank farms and silos
- offices
- repair shops
- other buildings required for terminal operations.

The following items are part of Port equipment:

- tugs
- line handling vessels
- dredging equipment
- ship/shore handling equipment
- cargo handling equipment (apron and terminal).



The way the Government (or any other public body) funds investments is diverse:

- Direct investments coming from the Government investment budget;
- Direct investments coming from a special (port) fund;
- Loans from International Finance Institutions.

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, etc. (per ton or per TEU);
- A fixed amount per year paid by the Port Authority to the Government; or
- A percentage of the annual port dues paid by the Port Authority to the

Government.

Often, basic infrastructure elements are financed by an International Finance Institution under a government guarantee. However, even when International Finance Institution financing is made available, ports and/or Governments must still face the challenge of providing matching shares for a period of some 30 to 50 years and making interest payments over a period of 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 International Finance Institution. For Landlord Ports made up of self-contained terminals, investment in the terminal should be financed 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 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 Eurobonds, 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, i.e., 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 International Finance Institution.

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, since installations and equipment often are leased under conditions that prevent their 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 14 describes the challenges mounted by such relationships in the case of one port authority.

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

Box 14

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 Queen Elizabeth Terminal (QEQ). QEQ will be operated under a BOT scheme by P&O ports, with other partners including Evergreen Marine Corporation and John Keels (Sri Lanka). SLPA will retain 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 QEQ.

Given SLPA's stake in both JCT and QEQ, 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 so-called South Port, will require that the role of SLPA become one of a non-discriminatory landlord without a direct hand in operations. This should improve efficiency and minimize the conflicts of interest. Moreover, a port sector regulator is to be established on or before 2003 as agreed in the QEQ concession agreement.

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 and/or 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 comprising 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 security underpinning 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 many cases the concession or the lease can be mortgaged to a lender who can use it or sell it to a third party in case of default. Using the land itself as collateral, however, is more 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 his ability to exercise his 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 opera-

tion of the terminal itself if the operator defaults. In the case of a land lease, a Port Authority is usually obliged to give permission to transfer the lease to a third party, such as transfer 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 sea-going traffic.

A port complex comprises a large variety of other assets that might be mortgaged or used as collateral. They include warehouses, quay cranes, offices and other buildings, tugs, dredged channels, etc. Some of these assets might provide security to a lender, especially when the assets can be used in other ports (e.g., cranes and tugs). Others, because they are immobile or have few alternative uses, constitute little or no security (e.g., 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 a "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 his/her loan. Estimation of such earnings is highly complex since 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, etc. 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/or obtain loans.

Governments may also guarantee commercial loans against political risk and possibly use the guarantee programs offered by the International Finance Institutions. 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 (e.g., 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.

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 will evaluate its participation in port infrastructure/superstructure projects based on the following elements:

- Expected yield;
- Adequate debt/equity financing structure (e.g., 65/35, 70/30, 75/25);
- Strong sponsorship;
- Solid legal contracts;
- Transparent legal framework;
- Fair and open bidding procedures; and
- Credible feasibility analyses (technical, institutional, financial, economic and environmental).

Funding large infrastructure investments in green field port projects is



more risky because of certain complicating factors including:

- The large proportion of necessary equity contributions (e.g., a minimum proportion of 60%) 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; and
- 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.

PORT REFORM MODALITIES

Overview

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/or services. Port reform, therefore, results in changing relationships between the public and private sectors.

The sharp increase in world trade over the last 50 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 over-investment 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 (e.g., as an element of the Ministry of Merchant Marine/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 part of their powers. The privatization wave launched in the late 1970s and early 1980s by Margaret Thatcher in the UK also affected the port sector and resulted in a re-assessment 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 thirty 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 15 summarizes the most frequently cited reasons for change in the management and/or ownership of ports, as these have been compiled from a large number of documents and articles.

Definitions

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.

Governments and port managers can select from among a variety of strategies for improving organizational and operational performance including:

Box 15

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/Managerial Reasons:

- De-politize 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 of the size of the public administrations
- Restructure and retrain the port labor force
- Eliminate restrictive labor practices
- Increase private sector employment.

- Modernization of port administration and management ;
- Liberalization or de-regulation port services;
- Commercialization;



- Corporatization; and
- 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, 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/de-regulation means the reform or partial elimination of governmental rules and regulations to 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. It 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 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. One definition of this term can be found in the UNCTAD publication of 1998:

"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, the following variations of privatization can be defined.

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 whereby 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 and/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.



Modernization of Port Administration

The strategies of liberalization, commercialization, corporatization and privatization all aim at improving 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 since 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); and
- Development of electronic data interchange (EDI) and information and

communication technology (ICT).

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 port 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. Also electronic data interchange (EDI) and information and communication technology (ICT) are excellent tools to improve port administration and communication.

In the final analysis, the Modernization of Port Administration 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 towards a more comprehensive reform program.

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 that its implementing legislation 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 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 non-maritime 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. An example is that of dredging 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. As a result, the logical conclusion of the Liberalization Option is for all commercial activities of the port ultimately to be transferred to the private sector.

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, and
 - 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 (e.g., the relevant Ministry or City Board). 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 aims 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 16

notes that the Government of Mexico followed this course.

Box 16

Creation of Independent Port Authorities in Mexico

In 1993/1994, the management of the major ports in Mexico was transformed into the Administración Portuaria Integral (Integral Port Administrations). This decentralized the port system, set up individual port administrations co-ordinated by the Coordinación General de Puertos, and opened the way to the privatization of 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.

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 (i.e., 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 and 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 and representative labor organizations.

In many countries the process of commercialization is only partially implemented since 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. His performance and his commitment to the commercialization of the Port Authority greatly influence his management team and the shape and pace of reform. In other words, managers accustomed to civil service procedures and practices have to drastically 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.

Corporatization

The next gradation on the path to full privatization is corporatization. One port practitioner noted that:

"Corporatization goes further than commercialization in that it involves the transformation of the public Port

Authority into a corporation. This means that the Port Authority is converted into a legally and financially independent legal body with its own Board of Directors. The government retains ownership of the port. By applying market principles, corporatization can lead to enhanced efficiency."

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 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 neither be 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;



- The Government sets clear and non-conflicting objectives for the new firm;
 - Management is given greater responsibilities and autonomy for decisions on operations, investments, revenues and expenditures, and on commercial strategy;
 - Where no market-based scrutiny is possible, performance is measured against a range of financial and non-financial criteria;
 - Rewards and sanctions for managers are based on performance;
 - The government makes certain that the corporatized firm does not have any comparative advantages or disadvantages relative to private port firms operating under similar market risks and conditions (e.g., with respect to tax and interest rates).
- (e.g., the memorandum and articles of incorporation) of 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, retraining, etc.) and transfer of personnel from the former public entity, if required;
 - Re-training of management and staff to increase commercial orientation and improve managerial procedures.

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.

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

The key difference from the other options discussed is that the aim 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 their actions.

The new corporation can be organized with clearer lines of communication and responsibility. Clearer targets can be set and adhered to. Stricter internal financial controls can be introduced and,



where necessary, information and accounting systems established. This all aims to make the business more aware of market and client requirements.

One of the corporatized port'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 effected through the appointment of Board members.

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;
- To overcome the reluctance of private capital suppliers to invest in the company; and
- 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 (e.g., as in 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;
- Unless competition is created, the corporate company 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.

Box 17 describes the process of corporatization for the Jaya Container Terminal in Sri Lanka.

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.

Many reasons may prompt governments or a Port Authority to enter into the privatization process.

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 Know-how of the Private Sector. Increasing specialization in the shipping and port industry requires highly trained person-

Box 17

Corporatization of the Jaya Container Terminal, Colombo

The Jaya Container Terminal in Colombo is part of the Sri Lanka Ports Authority (SLPA), which is solely responsible for operating all Sri Lankan Ports (Colombo, Galle and Trincomalee). After a surge of double-digit growth during the second half of the last decade, in 1999 the terminal experienced capacity constraints and could not handle container volumes efficiently, a situation that caused delays mainly for feeder vessels. An important step to improve capacity was reached with the establishment of a 30-year concession agreement with a consortium consisting of P&O Ports, P&O Nedlloyd, Evergreen and John Keels Holdings, Ltd. (Sri Lanka). The concession includes the reconstruction, operation and maintenance of the Queen Elizabeth Terminal with a capacity of one million TEUS. A second and more significant step is needed to create a "level playing field" once the Sri Lankan Government decides to corporatize the Jaya Container Terminal (JCT) to make it more efficient, and to assist Colombo in its goal of becoming a truly global transshipment hub.

The new enterprise developed a business plan, containing the following main topics:

- JCT's mission statement;
- Legal structure of the firm, Memorandum and Articles of Association;
- A Concession Agreement with SLPA;
- Definition of institutional, financial and operational relations with SLPA;
- Determination of leasehold area and asset base;
- Traffic forecasts and competitive position of JCT vis-a-vis local and international competition;
- Transfer of personnel and organization;
- Operations and automation including the creation of a new financial system;
- Profit and loss accounts and cash-flow projection situation.

JCT's mission was:

To provide for professional container terminal management and operations, with respect to container handling, efficient and regular services for stevedoring, landing, transporting and warehousing as well as stuffing and stripping of containerized dry and wet cargo, and wharfage, in such as way that:

- Internal cost discipline is maintained;
- All costs are recovered;
- An adequate return on capital is achieved;
- Customer needs are satisfied;
- Replacement and expansion investments are financed mainly by internal cash flows.

The Government and SLPA are discussing the business plan and legal charter of JCT. It is expected that after general elections at the end of 2000 the Government will support the corporatization of JCT.



nel, 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, 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; and
- Private ownership of operational assets with market-based contractual arrangements.

In theory, privatization provides the same flexibility to the 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.

REFORM TOOLS

Overview

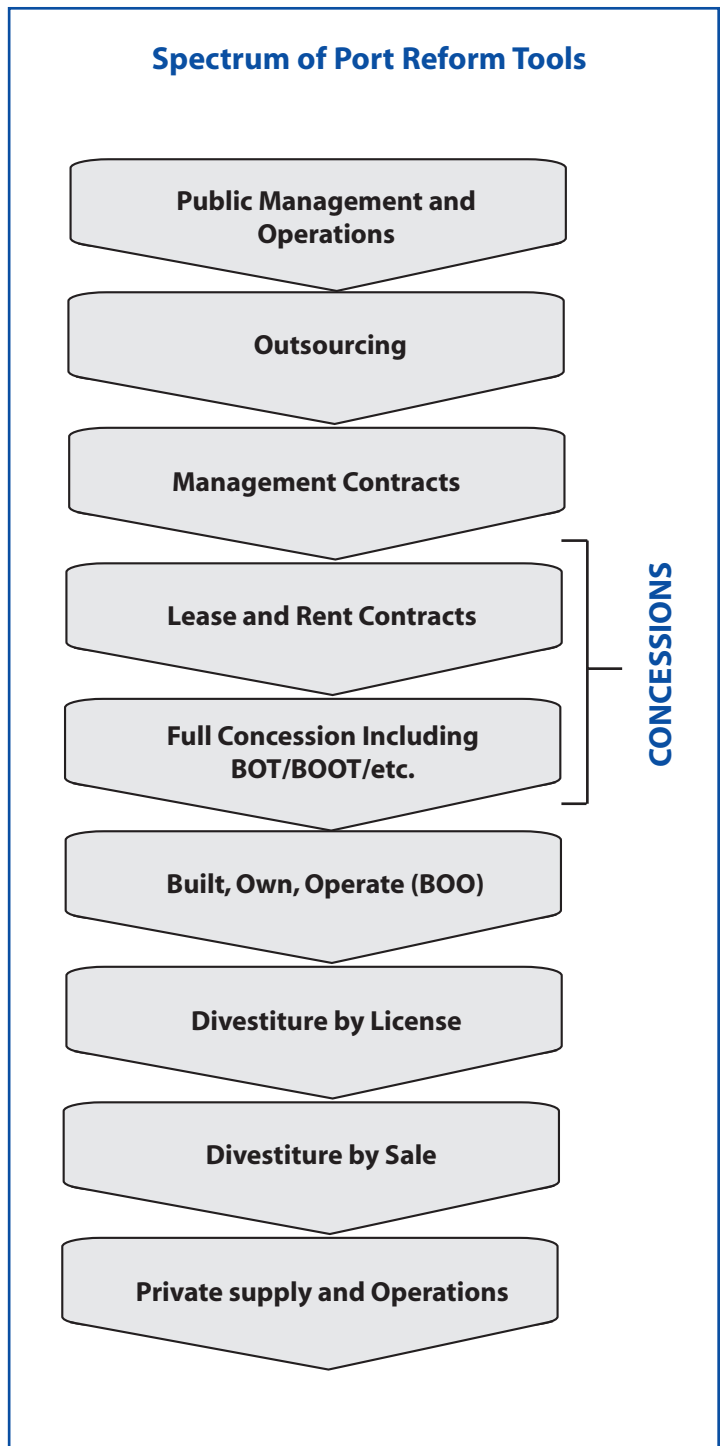
Before deciding on a port reform process, governments should articulate clearly the ultimate goals of reform. Broadly, there are two alternatives:

- 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 non-landlord activities. In this case, existing operations have to be privatized or corporatized and Service or Tool Ports reconstituted as a Landlord Ports. "Partial privatization" is the goal.
- The public entity having 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 18 shows the spectrum of port reform tools that will be discussed in

greater detail in this section.

Box 18





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 of 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 undertaking them "in-house" when the following circumstances apply:

- The functions can be performed at a price that is substantially lower than the cost of undertaking them in the public sector;
- There is ample scope for competitive bidding; and
- Government policy is to transfer gradually certain non-core 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; and
- 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/privatization at a later stage, on terms favorable to the Ministry of Finance of the country concerned; or
- The Port Authority generally would benefit from the introduction of private management.

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 (e.g., 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



towards 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 and/or terminate the contract in case the private operator does not meet specified minimum levels of efficiency, financial performance or throughput.

Concession Arrangements

Governments are still widely involved

in port management, mainly serving as landlord. 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.

BOX 19

The Experience of the Hanseatic Landlord Ports

On the north-west 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, 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? In my opinion it is. There are two main arguments to support this statement. Firstly, the landlord model opens up opportunities to adapt the port infrastructure fast to changing requirements of world trade. Secondly, 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 of achieving this.

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.

Michael Heinrich, Port of Hamburg, World Ports Development, 1999, p.16



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;
- Concession contracts, where the operator covers investment costs and assumes all commercial risks. Such contracts are often combined with specific financing schemes such as

Build, Operate and Transfer (BOT).


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; and
- They directly or implicitly allocate financial and operational risks.

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, berth occupancy fees, dockage, etc.

There are three basic forms of lease in use today: flat rate, "mini-max," and shared revenue leases.

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 (e.g., unpaved vs. 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; and
- 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 (e.g., in its best alternative use) and aim 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.

Under a mini-maxi lease the lessor gives to the lessee the right to use a fixed asset for a specific period of time in exchange for a variable lease payment. There is a minimum and a maximum payment depending on the level of activity recorded.

The characteristics of the mini-max lease are:

- The lessee's payments to the lessor (Port Authority) for the use of structures, equipment and land are established on a scale, which is defined by minimum and maximum throughputs;
- The rent varies with the actual volume of activity recorded;
- The minimum rate is applicable regardless of the volume of activity, but is based on reasonable assumptions about the expected minimum throughput;
- From this minimum, a sliding payment scale is applied until a predetermined maximum throughput is reached;
- The minimum rate may not fully cover the interest and amortization of the lessor;
- When the specified maximum throughput level is reached, the lessee pays no further rent.

With this form of lease, then, there are pre-established floor and ceiling rents to be paid; between the floor and ceiling rents, the lessee will pay more or less depending on the tonnage or number of TEUs handled. In this fashion the Port Authority and the private lessor share the risks and rewards of port investments and operations. The lessor has a strong incentive to operate efficiently and to generate traffic beyond the level at which the maximum rent is paid, since he receives the full benefit of any

revenues generated beyond that point.

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. As distinguished from a mini-max lease, 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:

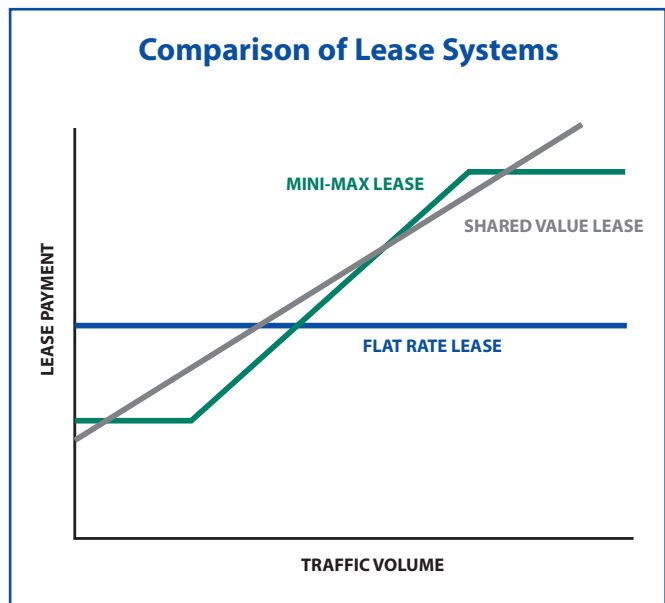
- There is a minimum level of compensation;
- There is no established maximum level;
- The only limit on the maximum compensation is the facility's/ terminal's capacity;
- Minimum compensation may not fully cover the interest and amortization of the lessor (Port Authority) for the lease area.

Both mini-max and shared revenue leases represent true partnerships between the Port Authority and the lessees. Under both arrangements, 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 20 shows how the three different forms of lease would work for a notional terminal.

Box 20



All three types of leases can be used for so-called multi-user as well as for single-user (dedicated) terminals or berths.

Potential lease partners for a Port Authority are:

- Terminal operators;
- Cargo-handling companies;
- Shipping lines;
- Forwarding agents; and/or
- Inland transport operators.

Today it is common for shipping lines to be major lessors from ports. For these



leases to succeed for all parties, however, two key conditions should exist:

- The shipping line lessor should generate a large volume of cargo at the port (i.e., 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 (i.e., a public access facility should be available).

If the port does not have other similar facilities (and other customers), the creation of a monopoly will 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, decrease, re-route 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 round-the-world service of United States Lines in the 1980s;
- Shipping lines constantly merge or conclude cooperation agreements (alliances) with other shipping lines. Such practices may result in changing sailing schedules or the establishment of special ties with other ports; and/or
- Shipping lines may re-organize their sailing schedules for reasons of internal policy.

Signing a lease contract with an operating company may be less risky than

with a shipping line, since:

- The operating company usually does not rely on a contract with one single user, but will spread the risk and safeguard its business interests by concluding 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 compliance with the lease 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.
- If the port's principal objectives are to maximize throughput and employment, with an initial need to subsidize the terminal lessee, the mini-max lease may be preferable; 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 preferable.

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 are twofold:

- Commercial relations based mainly on lease agreements;
- Relations based on public oversight functions of the Port Authority, such as enforcement of port by-laws, dangerous goods regulations, vessel management, etc.

During the last decade, 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 responsibilities. Each party knows exactly 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 conces-



sion contracts include:

- The need for continuing close government regulation and oversight;
- The system can work properly only when the legal framework 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/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/or operating the assets is transferred to a private concessionaire.

In agreements involving a Special Purpose Company, 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; and
- 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 concludes 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 (i.e., has 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 conflicts 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 non-developed 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/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/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 equipment (e.g., container cranes, transtainers, and rail-mounted port cranes) included in the concession;
- The functional requirements of the port and/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;
- 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 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 take-over 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/Port Authority and the SPC to cover such things as the building of access road and rail, the provision of water and electricity and other facilities.

Finally, in some instances, port reform is implemented through a master concession contract, enabling a private opera-

tor to carry out many of the port functions. This type of contract has not been used extensively, but is an option in the event that a public Port Authority is not able to exercise its core functions properly. A master concession is a sort of "wrap-around" agreement that includes the same basic ingredients as a normal concession agreement, and more. The main difference between a routine concession agreement and a master concession is the latter's provision for a concessionaire to conclude wide ranging sub-agreements with other operators. This form of concession approaches comprehensive privatization. Various interests can be represented (such as terminal operators, dredging companies, construction firms, banks and the government, itself) in the consortium or SPC concluding a master concession. A key concern with master concessions is how to avoid potential conflicts of interest between the public service function of the master concessionaire and its commercial activities. This comprehensive approach may be most suitable for small-sized ports.

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). 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 from taxes the investment funds necessary to finance such common access facilities and protective works. In such cases, they have sought to acquire funds either from an International Finance Institution (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/superstructure without changing the landlord structure of the concerned port.

The core of a BOT arrangement is a concession for a specified period of time involving the transfer or re-transfer of all or some of the project assets. An illustrative definition of a BOT arrangement is:

"A project based on the granting of a concession by a principal, usually a government, to a promoter, sometimes known as the concessionaire, who is responsible for the construction, financing, operation and maintenance of a facility over the term of

the concession, before finally transferring to the principal, at no cost or at a pre-determined price to the principal, a fully operational facility. During the concession period, the promoter owns and operates the facility and collects revenues in order to repay the financing and investment costs, maintains and operates the facility and makes a margin of profit."

Denton Hall Projects Group; A Guide to Project Finance; 1998 Edition, p.47

BOT is a frequently used form of concession model that in many respects has the character of a temporary privatization. BOT schemes have some features of a contract (e.g., clauses that cannot be changed such as duration and payments) as well as those of a license (e.g., permitting changes in activities or performance by the concessionaire within the broad framework of the license agreement).

Under the BOT approach, the government grants an exclusive concession to the private sector to build and operate a port project. In return, the private sector (sometimes a consortium of banks, contractors and operators, sometimes a global operator) undertakes the risk of completing the project and operating it profitably. The concession runs for a number of years, after which the project assets are transferred back to the government. After termination, the government/Port Authority can lease out the facilities, or grant another concession, enter into management contract, which may or may not have a new construc-



BOX 21

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 so-called build-operate-transfer or '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, Mumbai, India, and the proposed terminals at Chittagong, Bangladesh, Colombo, Sri Lanka, East Port Said, Egypt, 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 since this is a well recognized project finance structure they can limit their exposure to a relatively small equity injection and a 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 which, given the risks involved, a developer would be unlikely to be prepared 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 which 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 IFC, ADB or other multi-lateral agencies in order for the project to be 'bankable'.

Marc Lloyd Williams, Bill Jamieson and Norton Rose, *World Ports Development*, 1999, p. 20

tion component.

Exceptionally, the scheme may be arranged in such a way that the private company collects all port dues, including wharfage and berth dues. The Port Authority is then paid a base fixed fee plus a variable fee based on either revenue or cargo (tons or units) handled. In this way the Port Authority shares in the increased value of the facility due to improved productivity and efficiency.

The BOT scheme ends with the return of the project/terminal to the relevant authority, usually the Port Authority, at a specified date. The value of such transfer to the Port Authority depends

on whether the transfer occurs before the facility becomes economically or technically obsolete.

When designing BOT schemes, it is important to consider carefully which parts of the port can be concessioned 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/Channels:** This part of the port infrastructure can be concessioned 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 he derives an income from vessels using the fairways under an agreed fare system (e.g., San Martin-Rosario Fairway, Argentina, described in Box 22);

- **Terminals:** BOT schemes are usually applied to specific terminals, mainly in developing countries. There are many examples of such terminals such as JNPT-Nhava Sheva, India; Queen Elizabeth Terminal, Colombo, Sri Lanka; Port of Buenos Aires, Argentina; and many others;
- **Entire Port Complexes:** A BOT structured as a master concession contract could cover an entire port complex comprising a variety of terminals. Here, the SPC (or port operator) assumes defacto the role of a landlord Port Authority for the assets it has agreed to construct. The master concessionaire then offers sub-leases 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, and 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" that is equivalent to a master concession for small ports of local interest.

Other port assets cannot be easily concessioned as individual items. The most important of these are items such as breakwaters, piers, connecting channels, intra-port 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 his investment. The concession/BOT agreement, together 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):** meaning full privatization of the terminal, since the port land and the facilities



built on it are not returned to the government/Port Authority;

- Equip-Operate-Transfer (EOT): where port infrastructure already exists, but superstructure is supplied by the SPC;
- Build-Transfer-Operate (BTO): where the new port facilities are directly transferred to the competent authority (government or Port 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 (e.g., Costa Rica, South Korea);

- Build-Own-Operate-Transfer (BOOT): where ownership of land and facilities conveys to the concessionaire, but is transferred back at an agreed 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:

BOX 22

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 km) was a hazard to navigation. The water wasn't 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 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 ten-year contract represents a total value of around US\$ 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 to a depth of 28 feet the River Plate from Punto Indio to the Parana River and up the Parana Inferior to Puerto San Martin. 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 re-installation 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 US\$1 per net register ton. Ships with a draft less than 15 feet are charged every 3 – 6 months at a reduced rate. The waterway is divided into sections and subsections, and a ship is charged only for the sections and sub-sections 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.

- Operate the entire port facility under a Project Development Agreement (PDA);
- Manage the government-owned section under a management contract; and
- 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, anti-privatization backlashes (nationalization), unexpected new tax regulations, and other governmental actions could make comprehensive BOT schemes much less attractive.

Comprehensive Privatization

Comprehensive port privatization has, until now, been developed only in the UK and in New Zealand. Outright sale of port land combined with a transfer of traditional public port tasks such as safety and environmental oversight (e.g., 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 re-drawn 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 UK this levy was set at 50% 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 UK this levy was set at 25% of the profit during the first five years, 20% during the next two years and 10% during the last three years of the levy period);
- Provisions for the transfer of Port Authority personnel to the successor



company (e.g., the number and categories of personnel, salaries, benefits, pension rights) and/or their dismissal (e.g., separation package, re-training allowance, re-hiring preferences);

- Terms for the transfer of "public tasks," to the successor company or other entity such as aids to navigation, pilotage, handling of dangerous goods, and protection of the environment;
- The tax regime applicable to the successor companies; and
- 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 socio-economic situation in the country concerned.

In the UK, 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; and
- 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 macro-economic 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 over-investment in and duplication of dedicated terminals for major clients, which could unbalance demand for additional public transport infrastructure;
- Neglect by the private owners 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; and
- Reluctance of public authorities to lose income generated by the port business.

Background on the UK's port privatization is provided in Box 23. After ten years of experience in the UK with comprehensive privatization, some conclusions can be drawn. Generally, the UK 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 since there was no established market during the time of privatization. Subsequent trading of port shares suggests that the original prices were only 25% of their true market value.
- Ports were sold at significantly discounted prices. Discounted sales (in addition to the ruling that 50% 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% 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 UK 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.
- 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 (i.e., in Landlord Ports), selling the underlying port land made little difference. For example, port land at Dover (a for-

Impetus Behind Full Privatization in the UK

The United Kingdom is the only example of a country having lengthy experience with comprehensive port privatization. A number of ports in the UK, however, still operate in the public domain. It is instructive to analyze the UK experience to discern the circumstances leading the UK to adopt a comprehensive privatization approach.

The UK, as 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 anti-monopoly controls specifically for the ports industry, other than those provided generally by the Monopoly and Mergers Commission for Industry.

Over the last fifty years, British port structures have evolved in response reacted 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; and
- To achieve labor stability and a degree of rationalization followed by a greater degree of labor participation in the port enterprises.

In the UK, 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 in 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 UK – 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 re-investment 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 de-capitalization over the post war period, up to around 1970.

The main instrument for port privatization in the UK is the Ports Act 1991. This law provides for the formation by Harbour 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 company. Ministerial approval is required for the sale of shares and for the subsequent dissolution of the harbour authority. The company has to pay the Government 50% of the proceeds of the sale of shares, less any amount set aside for assistance to maximize employee participation. Where the company later sells port land, a 25% levy is charged on the proceeds of sales during the first five years, 20% for the next two years, and 10% 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% 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 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.



mer Trust Port) or Portsmouth (a municipal port) did not affect port output, since 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 re-develop obsolete port land. On the other hand, land speculation by privatized ports has become a reality, since older port facilities often are situated near the valuable real estate of city centers.

The UK experience, therefore, has yielded very mixed results and provides few arguments supporting comprehensive privatization (i.e., 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.

Port 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 cargos. 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 man-

agement can be 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 Northwest 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, for example 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, but did not invest in them. A separate private company was established to invest in the necessary infrastructure and carry out the oil transport function.

Some Port Authorities also seek to attract customers to their port facilities by facilitating and/or co-financing 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, in particular in ports structured on the landlord model.

A Port Authority's involvement in terminal operations beyond its homeport may not be focussed 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 industry, and for that reason essential from a point of view of competition.

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 24 describes what this entailed.

MARINE SERVICES AND PORT REFORM

Overview

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 undertaken to ensure the safe and expeditious flow of vessel traffic in port approaches and harbors and the 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 environ-

Box 24

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, improvement 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 (i.e., non-transshipment cargo). Transshipment cargo is not regulated because the transshipment business is an international and highly competitive one. The original service port structure has thus been changed into one of a land-lord 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 intra-port competition has not yet materialized.



ment 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 turn-around time in the port, are kept to a minimum.

Although ports may define marine services differently, and may have different responsibilities for providing them, in this section we will use the term to refer broadly to services having a nautical bearing, be it maritime safety, vessel traffic efficiency or marine environment protection.

Other services (e.g., fire fighting, immigration and customs services 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 do 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 (i.e., the ports' 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.

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 by-law 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, he is part of the Port Authority organization and heads the Marine Department. In some countries, he 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 by-laws, 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, he is responsible for coordination between this serv-



ice 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, 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 his public tasks in an unimpeded and unbiased manner.

Although the Harbormaster might be part of a Port Authority's management team, he should be free to exercise his 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, he 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.

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 when port reform is being undertaken.

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.

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, pilot stations, etc. 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 with respect to the following points:

- Training requirement 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; and

Box 25

The Creation of a National Pilotage Monopoly in the Netherland

In 1988, The Netherlands Pilotage Service became an independent organization, 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 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 Loodsencorporatie (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 Matériel Ltd.). Individual pilots, united in regional partnerships, the so-called "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.

Privatisation in The Netherlands did not bring an end to the debate about pilot services. The Government Audit Office directed harsh criticism at the privatisation process and asserted that the efficiency improvements did not benefit the shipping lines or the government, but solely the pilots. Notwithstanding the counter arguments the Government 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 of the pilots' incomes.

The cost structure of the Pilotage Organisation is not transparent. The fees are non-negotiable, 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.

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- Reporting requirements to the relevant Port Authority.

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 only for one private tugboat company to operate in the port area. In such cases, the Port Authority should regulate the service with respect to the following items:

- Minimum crew size;
- Minimum bollard pull;
- Communication equipment and channels;
- Roles and responsibilities relating to the vessel traffic management system; and
- Tariffs.

The optimum situation is where a number of tugboat firms compete vigorously in the port. In that event, the Port Authority should not have to regulate tariffs. Regulation of other aspects of tug operations such as manning can be at the discretion of the Port Authority and will depend on the local situation.

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 (e.g., single point mooring buoys, specialized piers for chemicals or gasses, 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.

Aspects to be regulated include:

- Minimum manning requirements;
- Communication equipment and channels;
- Number of mooring boats and their characteristics; and
- Tariffs.

Vessel Traffic Services and Aids to Navigation

Vessel traffic services (VTS) usually are 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 (e.g., the coast of The Netherlands). In principle, it is possible to privatize VTS services under a Concession Agreement. Aspects of these services that should be regulated by the competent authority include:

- System functions such as vessel management and control, emergency functions, information and communication functions;



- Types and specifications of radars and tracking software;
- Manning levels and qualifications;
- Reporting duties; and
- 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 is contracted out. Since Aids to Navigation are generally part of an integrated maritime infrastructure, the costs of providing these services are included in the general port dues. It is, therefore, difficult to privatize them.

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 to privatize it.

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.

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. Port patrol services are part of the Harbormaster's resources and, therefore, should not be privatized.

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 VTMS. Private firms (e.g., tugboat companies) may play a subsidiary role in crisis management in the event that



they are equipped with fire-fighting equipment. When a port does not have patrol vessels available, a contract with a tugboat company should be entered to guarantee availability of floating fire-fighting capability.

Box 26 summarizes the prevailing approaches for handling the most important port functions.

Control of dredging operations by a Port Authority is of utmost importance. Often, Port Authorities 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 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 26

**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
Private Sector Port	Pr	Pu	Pr	Pr	Pr	Pr	Pr	Pu	Pr		Pu	Pu
								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



FOOTNOTES

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