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**MDF III: VOICES FOR CHANGE,
PARTNERS FOR PROSPERITY**

**WORKSHOP TITLE: WHAT MAKES
YOUR FIRM INTERNATIONALLY
COMPETITIVE?**

Towards Port Best Practice

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- ✓ **Microprocessors: An Introduction**, published by McGraw-Hill, New York, 1982
- ✓ **The A to Z of EDI**, published by sui generis, Australasia, 1988;
- ✓ **Electronic Data Interchange**, published by McGraw-Hill, New York, 1991;
- ✓ **EDI in the Asia Pacific Region**, published by IDC, Boston, 1993;
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- ✓ In preparation: **A Methodology for Establishing National, Industry and Firm Strategies for Electronic Commerce**

Acronyms

The following is a list of acronyms used throughout this paper.

BOO	Build, Own, Operate
BOOT	Build, Own, Operate, Transfer
BOT	Build, Operate, Transfer
CEO	Chief Executive Officer
ECES	Egyptian Center for Economic Studies
ECLAC	(UN) Economic Commission for Latin American Countries
EDI	Electronic Data Interchange
ETA	Estimated Time of Arrival
EU	European Union
GCC	Gulf Cooperation Council
IAPH	International Association of Ports and Harbours
IDC	International Data Corporation
IRR	Internal Rate of Return
IT	Information Technology
ITWF	International Transport Workers Federation
KPI	Key Performance Indicators
LCL	Less than full Container Load
MENA	Middle East North Africa
NVOCC	Non Vessel Operating Common Carrier
P&O	Pacific and Orient (Shipping Line)
PKA	Paul Kimberley and Associates
PSI	Pre Shipment Inspection
TEU	Twenty foot Equivalent Units (Containers)
UK	United Kingdom
UNCTAD	United Nations Conference on Trade and Development
WCO	World Customs Organisation
WTO	World Trade Organisation

Abstract

This paper addresses both the procedural issues and the institutional issues of port reform, including labour levels and practises. The implicit theme throughout is that, while isolating specific ports, or port activities for reform, true success will not be achieved without an overall vision for trade process reform. This programme should include not just ports, but Customs, Government technical control agencies, shipping and transport companies, trade professionals, traders, importers and exporters. By agreeing a vision for a reengineered trade process, port reform may be placed in its proper context.

As a first step, a critical look at what we may consider a port to be at the beginning of the 21st century is discussed. Based on those factors, port processes are examined and the issues for change identified. An import and export transaction chain is documented. Fees and costs are briefly covered. Local MENA port issues are considered; there is some input from the port community on existing processes and on the need for improvements. A contextual section on the reformed trade process is covered, with some attention to information technology (IT) and electronic commerce issues.

The institutional reform process discussion includes decisions on types of reform, from complete privatisation of a port and its entire infrastructure, to part privatisation, to deregulation. Reform includes not just ownership, licensing and contractual issues but a holistic review of laws and regulations affecting port operations and international trade. Technological implications for best practise also include laws as they affect electronic commerce and EDI, a major undertaking in its own right.

Commercial, contractual and valuation implications of port reform, liberalisation and privatising are considered, as are typical key performance indicators. Some lessons of international practical experience of reform and privatisation are also discussed.

Labour reform issues are briefly discussed; the paper concludes with a brief statement of benefits accruing from a successful programme of port reform.

An Appendix contains the full text of a working paper, used as a research document for this final version of the paper. It includes various detailed tables, some references and web site addresses which may be useful for background reading and research.

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1.0 INTRODUCTION

The purpose of this paper is to explore what can be done to improve the efficiency of ports in the MENA region to world best practice standards, and to reduce costs, thereby removing local inhibitors to international trade. It concentrates on maritime ports since these are the major gateways for physical goods at the end of the 20th century. The first part of the paper looks at present practices, local variations in the MENA region, ideas on what constitutes best practice, together with some options on how MENA region ports might achieve that status. Because of the increasing importance of electronic commerce and trade facilitation to port and Customs efficiencies a section of this paper is dedicated to trade facilitation and supporting technologies.

The second part of this paper looks at the institutional factors that control port efficiencies. It looks at the role of the port authority and similar organisations; it examines means by which a Government may facilitate the migration from traditional operations to best practices. It considers both the modes and the means of reform, of privatisation and a plethora of options. It looks at key performance indicators, contractual issues, valuation and at the responsibilities of the public and the private sector in the reformed mode of port operations. It also examines some aspects of post reform results. It pays some attention to the labour issues implicit in trade process and port reform.

This paper is written from the standpoint of a practitioner in trade efficiency reform, especially in the international trade environment. This discipline relies heavily on information technology and increasingly on electronic commerce and EDI techniques, and the process reengineering these techniques make possible. Hence, the contents are somewhat process and technology oriented, as opposed to an economist's viewpoint.

Much of the content of the practical aspects of port operations comes from previous PKA assignments and experience. This has been complemented by extensive web research, some limited interview activity and a wide set of readings. All references, complete with a comprehensive set of web site references are included in an Appendix at the end of the paper.

2 PORT OPERATIONS

A port is a regional gateway to international trade; it is the entry and exit point for a nation's imports and exports. These imports and exports-and transshipments and transit consignments-may be bulk goods, travelling in specially made vessels for such items as oil and petroleum, grain, sugar and chemicals. They may be fully containerised vessels or general cargo, i.e. part containerised or non containerised vessels, or they may be passenger vessels. A port may be a maritime gateway, a river, lake, road, rail or air gateway. Most ports are multi-modal in that they serve as the combined gateway for several forms of transport, most typically maritime, road and rail, often with a mix of bulk and containerised traffic. Note: *Transshipments* implies that goods are received at a port and then repackaged for more convenient local transport to feeder ports or terminals, or to local distribution channels. *Transit* means that goods are received and then transported "as is" on to another port or terminal, often using road and rail links.

In the case of the MENA region, these functions represent the greatest challenge since it is the future of these transshipment-centric industries that are at stake from competitive port's activities. Industries surrounding transshipment include "break bulk" distribution and consolidation with other goods, warehousing, packaging, finance, insurance and banking services. Primary ports of call are populated by these support industries. Secondary ports of call have collateral services that are essentially subservient to primary ports; their activity and importance is therefore diminished. These secondary ports have lower revenues, longer and more manually based processes, hence more costly, which tends to drive business to other ports. These ports also incur higher ocean freight charges which, together with endemic inefficiencies, cause higher prices for local importers and exporters. Many MENA ports are in danger of either relegation to secondary status, or to finding promotion to primary status barred by the more efficient ports, including new entrants, especially in the Gulf, the Red Sea and north west African ports in Tunisia and Morocco, together with Israeli ports and Lebanese ports, not to mention Syria in the coming years.

The historical factors behind a port's success have revolved around location: proximity to the source of resources or manufactures being exported or the proximity to sources of consumption for imports. Proximity to international sea lanes and shipping routes and port efficiencies are increasingly important. Multimodal terminals and efficient land and internal transport are also influencing port locations to the point where the maritime point of entry may become of secondary importance.

2.1 What is a Port?

A port is not a single entity; it comprises a community of many sub-industries and enterprises. For example, it serves the shipping, shipping agent and NVOCC (non vessel operating common carrier) communities. In addition to cargo carrying vessels there are tugs and lighters. Then there is the harbour side, wharves and berths and special facilities for handling the different types of cargo; storage and warehouse facilities, both pre and post Customs. The Port Authority, Customs and several Government departments such as Health, Agriculture, Fisheries, Consumer Protection, Transport, Military and Security usually have a presence at gateway ports. And then there are the organisations involved with storage and movement of goods, and logistics.

These include stevedores, transport-road and rail-freight forwarders, warehouse operators, container terminal operators and storage yards, container repair operations, Customs Agents and the various branches of Customs.

Many of these organisations operate as separate entities so that there is traditionally a great deal of intra community business. Payments, transactions and business messages are exchanged between these businesses, using differing business systems and processes, different data bases and different methods of exchanging information. And this is a large part of the problem of port management, which has led to costly and inefficient ports, which in turn penalises national trade. The role of the actual Port Authority will be examined later on but it will already be clear that the traditional methods of operating a port, with the multitude of different participants in the system, poses severe strains on the potential for efficiency in today's ports. This is especially true of the MENA region, since they have many older and smaller operations than most international ports, more entrenched cultural differences and complex, local business practices. Labour unions representing the variety of trades and professions active in a traditional port are an additional complicating factor, as are local and Government regulations and traditional methods of administration and information exchange.

2.2 The Transaction Chain

The following describes a typical port operation from the perspective of the major activities that take place during import and export transactions.

There are two distinct systems in the shore based shipping segment:

- The movement of cargo between the ship and the gate of the terminal, depot or wharf;
- The movement of the cargo between the customer (shipper/consignee) and the gate of the terminal, depot or wharf.

The following illustrates the typical steps involved throughout the import and export cycles. .

The steps in the cycle are:

- A. Reporting the Ship; Ship's Arrival
- B. Berthing the Ship
- C. Stevedoring the Ship (loading/unloading cargo)
- D. Clearing the Ship: Ship's Departure
- E. Clearing the Cargo: Importer, Customs Agent
- F. Clearing the Cargo: Ships Agent or NVOCC (Containers)
- G. Consigning the Cargo
- H. Road Transport: Import-Export

See Appendix for detailed descriptions and tables for each of these steps. These descriptions apply to all ports, but most accurately to those that have not automated or adopted IT and electronic commerce techniques. This includes, most particularly, those

port operations that are monopolies, highly regulated or completely owned by the public sector. Hence they apply most particularly to MENA region ports, even though some local practises may vary.

2.3 Fees and Costs

From the detailed transaction descriptions it may be inferred that there is a complex, inter-related cost structure that determines the fee structure to importers and exporters, which ultimately flows through to consumers and impacts national trade efficiencies. The components of costs which make up fees to the point where cargo reaches the port gates are listed below.

a. *Direct costs of Cargo Movement from Supplier to Purchaser, including:*

- Ship costs at sea
- Ship costs in port
- Cost of handling ships and their cargo through ports
- Costs of service unreliability

b. *Indirect Costs (which may be up to 15 times greater than direct costs), including:*

- Inventory costs of delay to cargo
- Opportunity costs of capital tied up in delayed cargo
- Loss of market due to delayed deliveries
- Duplicated transport trips, extra documentation and administrative effort due to port inefficiencies and industrial actions
- Loss of productivity caused by inefficient packing and repacking of containers
- Non availability of export cargo or import trucks at due time at terminals
- Relocation of cargo due to inefficiencies and industrial action

Note: In 1975, UNCTAD claimed that the following cost proportions applied:

- Roughly 1/3rd of total costs of voyage are incurred during port visits at either end;
- Of the in-port costs approximately 1/3rd is accounted for by explicit charges on ships, the remainder is the cost of the ship's time
- Of the explicit charges on ships, 2/3rd are stevedoring charges; all other charges account for 1/3rd.

Clearly, there are now many exceptions to that rule of thumb but it is still a useful measure for many of the ports of the MENA region, even in 1999.

2.4 Cost Concerns

In a recent review of the current literature, interviews and questionnaire responses from port user communities (including users of MENA region ports), the following were quoted as being among the main factors influencing costs and fees:

- a. Costs and timely provision of tugs;
- b. High costs and low productivity of stevedoring;
- c. Inefficiency of terminal/truck interfaces and related demurrage costs;
- d. High costs and relative inefficiency of international depots;
- e. Complex, voluminous, uncoordinated, duplicated and overlapping, non standardised paper forms and information requirements necessary to navigate goods through ports;
- f. Poor use of information technology facilities for managing port processes.
- g. Incompatible information technology facilities, i.e. not integrated between port users and the various entities within the port;
- h. Varying rates and arbitrary (i.e. seemingly unjust) applications of those rates for overtime storage systems for container cargo;
- i. Irrational and unjustifiable systems for wharfage and additional handling charges;
- j. The cost and time effects of the requirements of Government authorities and agencies;
- k. Cost of empty container repositioning;
- l. Freight rates are often set within in a non competitive environment, depending on the size and location of the port.

The most common criticism expressed was that many Port Authorities have been little more than landlords taking care of safe entry, exit and berthing of ships but with no interest in the efficient movement of cargo through the ports. Users believe that ports appear to see this as the role of others.

2.5 Ports in the MENA Region

Many of the ports in the region are effectively state owned or Government controlled monopolies. They are often served in the main by smaller shipping lines, less concerned with world best practise than the larger lines. Monopoly practises, including labour unions, have led to short working hours, uncompetitive practises and a sometimes Byzantine mixture of systems for clearance of goods involving Customs, Port Authorities, religious authorities in some cases, Government departments administering technical controls, the trade professionals, security services and stevedoring services. All of these activities can, confusingly, take place within the port gates. As a result, traditional local business practices can take advantage of this environment to extract a range of unofficial fees or taxes from traders, who pay in order to obtain priority treatment-or any treatment at all in some cases. One port in the region has documented the unofficial costs (bribery) of clearing a container shipment worth an average of \$22,500 at \$600 per consignment.

Because of the scale of operations and attitudes toward investment, capital equipment installations usually lag behind best practise ports: labour is cheap and the user will pay, goes the argument against automation. Since ports are usually a major source of employment, there is often an unspoken political imperative to leave things as they are. This comment applies equally to port and ship handling equipment, stevedoring and logistics equipment, and container handling and road/rail transport.

Customs and technical controls legislation often supports these local practises, which can be exacerbated by PSI (Pre Shipment Inspection) regulations and such requirements as "legalised invoices", imprecise valuation rules and multi lingual paper documentation. The cheap costs of storage in many ports is a disincentive to efficiency. It can be considerably cheaper to leave goods in port storage for two weeks than to store it in a commercial warehouse after Customs clearance. In this way a trader defers paying Customs duty and port associated fees and gets cheap storage, while he pre sells the goods.

The use of information technology for port management systems is comparatively primitive in these ports, with little or no EDI or electronic commerce activity. There are not many regional examples of systems integration between separate enterprises within the port community; with only a small number of exceptions there are no port communities with fully integrated IT systems. EDI and electronic commerce are attracting some attention now but until Customs systems, Government technical controls departments and traders automate their trading systems and become EDI and electronic commerce-capable, this will remain an academic discussion. Note that the port of Dubai is a significant exception to these comments. Some new, purpose built regional ports and Israeli ports also have the opportunity to leapfrog present processes.

User fees and costs are dependant upon port and port community efficiencies. As globalisation forces the adoption of best practises on ports and on their user communities, and particularly on their use of information technology, electronic commerce and EDI, this pressure is increasingly being passed on to Port Authorities and other Government agencies. Clearly, there is a need to reform port practises, probably through ownership and investment changes, in order to comply with the needs of international trade and transport organisations and their users. There is a need to integrate port processes and port IT systems, using EDI and electronic commerce. There is a need to develop port information and control systems and for users to integrate their systems with those of the port and the port community. This need extends outside the port gates to importers and exporters, road and rail transport, the trade professionals, Customs authorities, technical control agencies and the legislators and regulators.

By addressing these issues port communities will be able to undertake both procedural and institutional reform. Efficiency improvements carried out within a consequent competitive environment will lead to cost rationalisations and to compliance with the needs of traders, the WTO, WCO, EU and the international funding agencies.

2.6 Reengineering Port and Trade Systems: A Broader Viewpoint

Caveat: To try to solve all the problems of inefficient and uncompetitive trade processes simply through reengineering port processes is oxymoronic. A port is a component-vitally important though it may be-of an overall trade process which also involves importers, exporters, shipping companies, the port community, trade professionals and Government departments, principally Customs. It may also include religious authorities. To attempt to cure the ills of the total system by improving a single component is like making one leg of a racehorse go faster. It could actually produce a negative effect and make the system worse. That is unlikely of course, and it is important to start somewhere. Nevertheless, port improvements and reform, both procedural and institutional, must be undertaken with an overall vision in mind and a strategy for how the total system can be improved. A holistic vision for the complete trade process is crucial to long term improvements of such a complex system of inter relating organisations.

2.7 A Model Reengineered Trade Process

To reiterate the theme of this paper: It is necessary to make fundamental changes to stand a real chance of improvement. The changes need to take into account (among others) WTO, WCO, EU and GCC requirements, most particularly the Kyoto Convention. Naturally, the needs of global trading partners and are also paramount. The principles of change are covered by the concept of reengineering the trade process. These concepts include transparency, pre and post event auditing and pre clearance within the following communities: Customs; the ports; the trader community; trade professionals, and the Administration.

The context for port process reform is ideally set within a programme of overall trade process reform. The following are highlights of a model for trade process reform.

- To reform port processes; to automate processes; to introduce port management and control IT systems; to create a paperless port; to realign the roles of the Port Authority, the port community and port users.
- To upgrade Customs processes and IT systems in order to take advantage of electronic commerce and paperless customs operations;
- To implement electronic exchange of trade information between the port, Customs, trade professionals and the trader so that information is exchanged immediately and accurately;
- To reengineer Customs work practises to reflect the changing role of Customs from a “police” mentality to that of a trade facilitator and business partner
- To install container scanners within a Customs area *outside* the port gates, in order to scan sealed containers. Containers will remain sealed in all but the most extreme cases;

- To implement pre clearance as a result of exchanging electronic information *before* goods arrive;
- To implement pre and post event auditing, whereby trusted trading partners are able to declare origin and consignment details to the satisfaction of Customs and the relevant technical control agencies. As a result, the importer, and his goods, may be audited infrequently by a Customs investigation/audit unit on the importer's premises instead of physical inspections at the port.
- To add the concept of "risk management" to the Customs IT clearance systems, so that the history of trading partners may be used to assess the risk of lost revenues and fraudulent information in advance of any declaration.
- To establish a Customs Training Institute in order to set new minimum standards of professionalism and competence within the Customs service and the trade professional. This institute will offer formal qualifications, without which trade professionals will be unable to submit information to Customs in the future.
- To overhaul the system of trade laws and regulations so that new legislation may be enacted to make possible the legal exchange of electronic information, electronic signatures, a reengineered IT based Customs and port environment, electronic payments and electronic funds transfer techniques.
- To establish a national trade process reengineering and IT/electronic commerce project management entity which will also provide the technology, expertise and the neutral and autonomous forum for cooperation between all of the participants in this major project.
- To establish a "one stop shop" where all remaining technical controls may be issued to traders, and paid for, within a single visit.
- To develop the IT systems of this "one stop shop" so that technical controls may ultimately be applied for and issued electronically, and so that risk management principles may be adopted by each of the technical control agencies.

2.8 IT and Electronic Commerce in a Reformed Port Environment

Ports need to deal with a wide range of disparate activities: the movement of ships, passengers, cargo and containers, the loading and unloading of ships and containers and Customs and technical control agencies' activities, among others. And then there are the human resources to consider, in addition to physical resources such as anchorages, channels, lighters, tugs, berths, warehouses and storage space; all have to be allocated and managed. The management of a port involves efficient deployment and utilisation of all these resources, the flow of payments between port users and the provision of timely, readable and accurate management information.

The most successful applications of IT to port management have the potential to yield the following:

Potential Benefits	Key Performance Indicator (KPI)
Accurate scheduling of ships arrivals and departures leading to reduced turnaround times, reducing congestion, contention for resources and costs.	Savings in operating costs; reduced costs to shippers and traders. Reduced time for availability of goods.
Better utilisation of all port's assets, equipment, fixtures and fittings through enhanced ability to schedule and balance use of key resources within constraints of commercial imperatives and user requirements.	Reduction in capital requirements; improvements in return on existing investments.
Reductions in time to deliver cargo resulting from improved communications between all of the parties concerned with port usage and import and export.	Reduction in costs to trader and to consumer and export clients, leading to growth in trade.
Accurate transaction information; integrated IT systems between all participants in the trade process.	Reduction in personnel, time, costs and paper in administration.
Higher throughput of cargo and increased utilisation of port facilities.	Increased volume of containers, general and bulk cargo, and passengers handled with known resources.
Increased security and Customs efficiency as a consequence of container track and trace systems	Lower Customs costs; increased Customs revenue; reduced cargo losses; reduced problems in identification; reduction in 'unofficial taxes"
Better integration into national information sharing and IT strategies. Adoption of international standards.	Reduced costs and time of double handling and correction of information, especially for national statistics, revenue reporting, etc.

2.9 Key Performance Indicators (KPI)

To complete this section of the paper the following table summarises some suggested kpi for process-reformed ports. Variables are accounted for by differing vessel types and age, differing physical facilities, weather, daylight, manpower, local practises, etc. These are not meant to set standards by which ports may be compared; merely to illustrate the variables by which a port may be measured. Note that TEU is an abbreviation for containers in Twenty (foot) Equivalent Units. A 40 foot container is regarded as two 20 foot containers for these comparative purposes.

Mode	Commodity	Handling Method	Shipment's Size	Output per Call	Comments
Unitised	Containers	East-West traffic. Gantry cranes.	1,500 TEUs per call	85-120 TEUs per hour	11,000 ton/year/metre quay length
Unitised	Containers	North-South traffic. Gantries and derricks.	700 TEUs per call	60-90 TEUs per hour	6,000 ton/year/metre quay length
Bearbulk (non container; ship carries own handling equipment)	Cement: in/out	2 ton pallets	Variable	120-240 ton per hour	

	Logs: unload	Hydraulic clamps	3-5,000 ton	300-400 ton per hour	
	Logs: unload	Slings	3-5,000 ton	<300 ton per hour	Daylight only
	Fruit	Box on pallets	Variable	42-55 ton per hour	
	Fruit	Pre palletised	Variable	225 ton per hour	
Dry Bulk	Animal feedstock	elevators	30-60,000 ton	1,100 ton per hour	
	Animal feedstock	Cranes	5,000 ton	300 ton per hour	
	Ore/coal	Cranes	Variable	1,000-1,500 ton per hour	
Liquid Bulk	Crude oil	Pumps	Large	Up to 15,000 ton per hour	
	Misc.	Pumps	Variable, Small	300-1,000 ton per hour	

Note: Container handling and storage costs are generally accepted to be about \$100 from ship to port gates. They may vary with port size and conditions between \$90 and \$400.

2.10 Summary

There is no shortage of information about what ports now have to provide to become competitive, to comply with the global supply chain's requirements and to service local users and multi modal feeder ports or terminals. Nor is there much doubt about the need for reform of both processes and institutional factors. The benefits of reform include staying in business, giving local firms access to global markets and consumers access to a wider range of cheaper consumer goods. Electronic commerce and its attendant enhanced courier and express parcel activities and the drift toward airfreight carriage of high value smaller packages will not affect the fundamental requirements of a port. The electronic commerce trade phenomenon reflects growth in trade, especially in some high value items; generally speaking these consignments do not cannibalise port traffic.

World trade continues to grow, as does its requirements of ports. Institutional reform and funding are the key considerations for effective reform. Process reform is largely dependant upon institutional reform. And institutional reform ideally takes place within a climate of reform of the overall trade process.

The remaining part of this paper examines the factors and requirements of institutional reform, specifically for Port Authorities.

3.0 INSTITUTIONAL FACTORS

The previous section looked at the broader issues of the trade process and the roles of individual organisations within that process. It covered port operations in some detail. This section becomes even more port-specific. It examines the necessary prerequisites to port reform and the various modes of institutional reform that enable a port to migrate from a state owned monopoly to a fully reformed efficient port. Ideally viewed as a component in a national trade efficiency programme, the port may be owned and operated according to a variety of models, from full privatisation of ownership and operation to a joint venture between the public and private sectors, with multiple operators and owners of specific port functions. This section looks at some of these different models, the objectives and mechanisms to achieve them and some techniques for market valuation. It concludes with an illustration of some results of privatisation and the needs for a labour reform programme, synchronised with the port reform and a comprehensive trade process reform programme.

3.1 The Role of Port Corporations

Ports typically provide the dredged channels, swing basins, breakwaters, navigation facilities, berths and moorings, cargo handling areas and the facilities necessary to bring ships into harbour and to move cargoes from ship to shore.

Some ports also lease out land, terminals and cranes to stevedores; some also contract with private providers of port services such as towage, pilotage and utility services for ships. An internal (to the port) transport system-road and rail-linked to the general transport system is also required to move cargo to and from the berth.

It is possible for all of these facilities to be provided by the port corporation, as is done, for example by the port of Singapore. Such ports are referred to as "service" or "comprehensive" ports. In other ports, such as those in Northern Europe, many port services are provided by independently contracted service providers. This model is often known as the "landlord port" model. However, the term "landlord" may imply a degree of disinterest in the efficiency and performance of the port; this implication does not apply where, for both commercial and wider policy reasons, the port corporations operating under this model function as strategic managers of the port as well as landlord. Typically such ports undertake a number of core functions including:

- The landlord function.

Note: Under the broad definitions of the "landlord function" the Port Authority maintains responsibility for

- *Maintaining approach channels*
- *All navigation aids*
- *Harbour Master's functions*
- *Ultimate ownership of land*

➤ *Structural maintenance of civil works*

- Policy making, planning and overseeing the development of the port
- Regulatory, supervisory and surveillance function
- Monitoring, promotion, marketing the port and its services
- The port training function

3.2 Inter and Intra Port Competition

One of the powerful motives for port reform is the impact of competition on a port's existing or (perceived) future business. Reform can be viewed as the best way to make a port more competitive. Competitive pressures can be exerted on ports and their participants at a number of different levels, as indicated by the following.

Global Competition

At this level major export customers may, quite rapidly, switch their sources of supply to other countries. Globalisation, containerisation and the growth in numbers and function of trans national carriers have opened up new opportunities for this form of international port substitution.

Competition Between Port Ranges

Competition at this level allows port substitution without any change in the origin and destination of cargo. What changes is the shipping service and port facilities used to transport the cargo. A good example is the competition between the Atlantic coast ports of North America and the Pacific coast ports for cargoes to and from Asia.

Successful competition at this level depends on shipping access to alternative ports and opportunities for land-bridging, depending on efficient transportation and multi modal terminals operations. Hence this competition is most effective where the cargo destination is some distance from the coast.

Competition Between Individual Ports

The simplest substitution of one port for another port of call is common in areas such as the Pacific west coast of America, the Hamburg-Le Havre port range in Northern Europe or in the crowded port markets of the Persian Gulf. The river port of Liverpool, allied to its new multimodal facilities and the rail link via the channel tunnel to northern Europe is an interesting example of a port competing both with its own legacy maritime facilities and the purpose built-but slightly older English ports developed to serve the European mainland ports.

For bulk commodities (and obviously for passenger traffic) such total substitution is rare. However, partial substitution can take place in some commodities such as grain, as

upstream storage and handling facilities and inland transport practices are competitively created and upgraded.

Competition Within a Port

Internal competition can play an important role in connection with provision of some port services. However, costs of capital equipment or storage facilities limits the necessary economies of scale for effective competition in most ports. Interestingly this may not be true for the provision of information technology intensive services, such as information gateways and electronic commerce/trade facilitation services between industry, community and firm proprietary IT systems.

3.3 Objectives for Reform

So what may be considered to be the main objectives for port reform, setting aside political rhetoric and expediency. The following contains some suggestions.

1. To promote a competitive market in port services with consequent economic and social benefits.
2. To prevent misuse of monopoly and market power, including firm, operator, Government or organised labour.
3. To facilitate entry into a specific or broader market, servicing the future needs of both local and international businesses.
4. To facilitate efficiency in regulated industries, so that they can achieve best practice and compete at commercial levels.
5. To ensure that users and customers benefit from competition and efficiency, ensuring economic benefits flow through the economy to the consumer-and the voter!

3.4 Reform Initiatives

A Government programme of port reform can encompass a number of policy initiatives, depending on local circumstances and preferences. These may include:

- Privatisation of the ownership and operation of ports.
- Corporatisation of a port, converting it from a monopoly into a commercialised publicly owned enterprise.
- Separation of the control of the maritime access routes to ports (channels) from control of land based activities, which may then be separately treated from a reform perspective.

- Transfer of the regulatory powers of port authorities to other organisations and agencies.
- Regulation of prices for those services in which there is unlikely to be sufficient competition to impose an effective discipline on pricing behaviour.

In any individual case a mixture of these measures might be appropriate.

3.5 Objectives for Privatisation Schemes

Where privatisation is the chosen reform policy, whatever the mix of particular options or models there are several important objectives in common, some publicly acknowledged, some less so:

Efficiency, productivity and management capability improvements;
 Reduction of a financial burden on the public sector; increased revenue generation without increased investment and risk;
 Service enhancements for users and price reductions for port services;
 Ceding the specialised tasks of port management to the private sector, thereby reducing political exposure and gaining political kudos for a proactive approach to trade and globalisation.

Other Objectives might include:

5. Redistribution of wealth and other social objectives, such as curbing power and influence of labour unions and other monopolies involved in port operations.
6. Trade and business development for the region, country and port.
7. Risk and reward sharing between public and private sector.
8. Stimulating investment in the country; enhancing the role of entrepreneurs and the private investor.
9. Technology transfer; management skills development.

3.6 Private Sector Participation

There may be many local reasons for seeking private sector participation. In general, it is because of the perception that the public sector cannot provide the necessary commercial expertise and discipline that the private sector has to display in order to survive in the port industry. The factors influencing this perception can include:

- Competition from other ports, making any disadvantage obvious to the commercial user;
- Competition between port customers, thereby forcing them to demand better services of the port;
- Government political platform; new policy initiatives;
- Influence of international agencies and globalised port users;

- Public outcry against high port charges;
- Measurable and demonstrable low productivity compared to known competitors;
- Theft and corruption
- Losses and unavailability of merchandise

The principles of port privatisation demand that any entity providing port services should operate in a commercial environment under market mechanisms. In order to achieve this aim it is seen that Governments need to adopt an enabling legal regime combining deregulation and decentralisation with anti-monopoly laws and other, specific legislation, defining private sector participation.

3.7 Measures Governments can Take to Encourage Private Sector Participation

To reiterate: Governments need to create enabling legislation and regulations for any port reform initiative. Government needs to design a legal and regulatory framework based on market mechanisms to ensure the undistorted functioning of the market. As a result, the entire port community will be covered by the same standards and expectations of performance and will compete on equal terms. Government should support economic policies and ensure that pressure groups cannot distort the commercial environment. An appropriate legislative/regulatory framework can include:

Deregulation of port sector: eliminate bureaucratic rules, regulations and obstacles such as subsidies, cross subsidies, reserved occupations, overlaps in functions and responsibilities, and repeated Government bail outs.

Decentralisation: Governments must remove themselves from day to day operations and financial decision making. Instead they should concentrate on policy matters and the complete integration of port operations into broader trade process reforms, and trade development. All sectors must become financially responsible for their own actions. The overall aim is to guarantee innovation, increase efficiency, productivity and cost effectiveness, use of local resources for investment and transferring accountability from the national to the local level.

Anti-monopoly laws: a reformed port will only operate effectively in a climate of vigorous competition. Government must protect the concept of competition. These laws do not to protect firms or individuals from competition. Government should also enforce property rights, launch investigations and punish abuses. Government should ensure that a State or natural monopoly is not directly handed over to the private sector by overseeing the selective and assiduous use of tenders and competitive bidding.

Specific legislation: Define conditions for participation, for renewal and reversal. Options. Guidelines for valuation of equipment and properties, measures for safeguarding investor's property rights.

Anti monopoly measures include privatisation of the port. Forms of privatisation include:

Comprehensive privatisation: equivalent to the sale of an entire port, including infrastructure, to a third party company.

Partial privatisation: whereby only part of the assets are sold or transferred to the private sector, such as a concession to operate a container terminal, while other entities operate the infrastructure roles.

Full privatisation: whereby the ownership of the complete operation-but not ownership of the infrastructure-is transferred into private hands, quite often (in practice) to more than one company.

Part privatisation, for example a joint venture between the public and the private sector.

Privatisation, corporatisation, commercialisation and deregulation refer to concepts promoting a greater role for the private sector and more freedom for the private sector in the operation of ports. In order to turn these concepts into action there are specific instruments, or modes of privatisation, that can normally be applied. These primarily include:

- Licences or concessions to operate given functions for a certain time under contractual conditions.
- Leasehold contracts, giving rights to the port infrastructure, for a certain time, under contractual conditions.
- Build Operate Transfer (BOT), Build Own Operate (BOO), Build Own Operate and Transfer (BOOT) arrangements.

Within these choices there is a range of alternative options, including:

- Hiring private stevedoring companies (or more than one);
- Management contracts for the complete port operation or specific activities;
- Concessions;
- Authorisation for private terminals to handle third party cargoes

The options taken up depend on national objectives and policies, local conditions, response to tenders and the requirements of the major bidding companies.

3.8 Valuation of Existing or Projected Facilities

It is possible to create theoretical models for port and facilities valuation, reached as a prelude to commercialising a port's operations. These models imply that a port can be commercialised as a cost-plus, or zero risk business. Experience shows that valuations on the basis of existing costs can be misleading, resulting in unrealistic expectations and

disappointing outcomes of negotiations. The only true value is its worth to the market. Nevertheless, the following models are used in varying circumstances:

- Methods based on the value of existing assets, making due allowance for depreciation, alternative use of assets, etc.
- Expected earnings projections, based on financial modelling and independent, objective input;
- Market based methods, i.e. what the market thinks it is worth;
- Port-industry specific-methods. A valuation reached by a set of rules agreed to by all parties to the potential transaction.

3.9 Port Costs and Prices

In attempting to reach a fair valuation, by whatever method, it is important to consider the revenue generating mechanisms of the ongoing operations and of future potential business. There are two broad categories of pricing: basic infrastructure services and operational services such as towage and pilotage.

There is usually limited scope for in-port competition for infrastructure services therefore there may be a stronger case for some type of regulation of some of these services. Channel services are generally accepted to be a natural monopoly. Berths and storage areas within the port may be provided by the port company or by a third party. In the first instance the port company will directly set prices; in the second the company will control land rights and will normally exercise indirect influence over charges levied through the conditions of the land lease or development agreement. In either case the port company is able to exert considerable influence over infrastructure service prices at all sites within the port.

Operating services are more variable. Industry experience suggests that there is not usually competition for pilotage and towage services but competitive pressure can be applied by such approaches as franchise bidding.

In most cases port charges, particularly infrastructure charges, comprise only a small proportion of transport costs and an even smaller proportion of the landed costs of a commodity. The argument is that, because these components of total costs are such a small component of overall costs, it may even be possible to maintain infrastructure prices at a higher level than competition would allow, without damage to trade.

Infrastructure prices are commonly recovered by using a number of revenue streams, e.g. pricing of berth service. These will typically include a combination of wharfage, berth hire, short term area hire or lease payments. However, the more complex the mix, the less the transparency of pricing, especially where there may be confidential agreements in place. Which conflicts with some of the principal objectives for reform.

3.10 Tariff Structure Considerations

Traditional port charging structures are complex, enabling operators to obtain their revenue from a variety of sources. Some may charge specifically for berthing (mooring) and pilotage. Others, which generally comprise a far greater share of port revenue, are generally regarded as charges for the provision and maintenance of infrastructure.

There are four main components to these infrastructure charges:

Wharfage: A charge per unit of cargo loaded or discharged by a vessel. However, particularly in the liner trades, wharfage is usually collected by the port organisation from the ship owner, who then passes it on to the importer or exporter. Typically, wharfage charges are uniform throughout a port, irrespective of which berth is used.

Berth Hire: A charge based on the length of time a ship occupies a berth (stay time). It is payable by the ship owner. Charges may vary with the size of the vessel.

Site Leases: Sites made exclusively available to a single occupant are subject to period leases. Payments may also include volume or performance based components.

Facility or Area Hire Charges: An alternative to site leases for common user berths. This concerns short term hire to a number of different operators; they are usually time-related and typically applied to stevedores.

See section 2.0 PORT OPERATIONS, for a detailed look at all port pricing.

3.11 Port Performance Measures

In preparation for privatisation, or any reform measures involving ports, it is necessary to establish some performance benchmarks. These metrics will be used for valuation of assets and services, for the evaluation of competitive bidding, for contracting, for performance related service pricing and for monitoring and surveillance of the progress and performance of future port operators. The basic measures include:

- Measures of productivity, such as numbers of TEUs handled per hour;
- Measures of production, such as labour utilisation;
- Measures of resource utilisation, such as an average time ships spend in a berth, measured from arrival to departure;
- Measures of service levels, such as average time to release goods to importer.

3.12 Market Based Labour Reform

Labour reform is the third component of a full trade process reform, including ports. Privatisation of a port's operations represents a once in a lifetime opportunity to revise

labour participation in the process in the light of technological advancement and changes in port practices.

At the policy level, the main aims of reform are to expose the labour sector to market mechanisms so as to increase its speed of adaptation to market conditions, for their own member's benefit and that of port users. To achieve this goal, Governments need to deregulate and decentralise the commercial environment and collective bargaining in ports. Government participation should be restricted to setting up the regulatory regime and assistance with dispute settlement, adopting anti monopoly laws to prevent abuse by port operators or unions, helping to define the rules of equity for pay and experience, training, work replacement and early retirement. Government should use its best endeavours to assist in the establishment of a regime of collaboration with port and terminal operators to facilitate decision taking affecting union members, port clients and port operators.

Such a programme of labour reform should concentrate upon:

The organisation of labour
Sustainable employment levels
Streamlining of the workforce, through:

- Natural attrition
 - Early retirement
 - Voluntary redundancy
 - Compulsory redundancy
 - Work Creation
 - Work substitution
 - Incentives
4. General contract conditions for Employment
 5. Negotiating machinery for reform of industrial relations
 6. General employment safeguards
 7. Personnel and manpower development
 8. Upgrading training capability
 9. Management strategy for the introduction, implementation, follow up and monitoring of industrial relations reform

3.13 Results of Privatisation

The following represents just some of the results of reform in the port sector. They are by no means all related to technology innovation but technology is becoming increasingly important in the more recent examples.

Chile: In 1981 the Chilean Government created competition in cargo handling and stevedore operations. It deregulated port labour, eliminating any differences between dockside workers and stevedores. It authorised the private sector to establish stevedoring companies. Resulting performance improvements eliminated the need for \$50 million in infrastructure investments through productivity improvements and asset utilisation improvements.

Cargo handling of boxes of fruit increased from 2,060 per hour in 1978-79 to 6,500 in 1985-86. This in turn caused a reduction in vessel stay times from 129 to 40 hours and reduced per box charges from \$0.54 to \$0.26.

Fruit box volumes grew from 572,479 metric tonnes in 1985 to 1,256,811 tonnes in 1995 without any new investment in berths.

New Zealand: The New Zealand Government deregulated transport in 1984 but cost structures remained unaffected because ports were still State owned and operated. In 1989 they were converted into limited liability companies. Employment contracts for all labour, and management, were then introduced, together with work practice reform, which yielded immediate improvements. For example, in 1990 the dairy industry, with an industry-wide annual freight charge of \$107 million, made savings of \$5 million, or \$3,500 per dairy farmer. The Port of Tauranga is handling 60% more cargo per vessel per day; the productivity of log handling gangs has increased by 150%.

Port Klang (Kuala Lumpur, Malaysia): The container terminal was transferred to the private sector in 1993 on a 21 years contract. Number of TEUs handled:

1993 19,867
 1994 137,937
 1995 269,941
 1996 443,656

In 1996 Port Klang handled a total of 49 million tons of cargo. By 2000 this figure is expected to increase to 74.8 million tons; by 2010 to 113 million tons. Port Klang is now fully privatised, as is the port of Malacca.

UK adopted Registered Docks Labour Scheme in 1947 to give dockers jobs for life and to eliminate casual employment schemes prevalent until then. Average cost per metric tonne for handling cargo at a "Scheme" port was between \$12-\$27. At same time, same activities in Rotterdam and Antwerp cost \$4.50-\$6.50. Dock Labour scheme was estimated to have cost the UK economy more than \$800 million. UK Government began privatising ports in 1983 and abolished the "Scheme" in 1989.

Following that change productivity in container handling rose by 87% in 1990; in general cargo by 28.4% per dock worker over the same period.

The Government of Argentina produced some selective indicators resulting from the first five years of privatisation of Port of Buenos Aires.

Indicator	1991	1995
Cargo ('000 tonnes)	4,000	6,000
Containers ('000 TEUs)	300	540
Capacity ('000 containers p.a.)	400	1,000
Operational area (hectares)	65	95
Productivity (tonnes per worker p.a.)	800	3,000
Average stay for full containers (days)	2.5	1.5

Costs for container imports (US\$ per tonne)	450	120
Port tariff for exports (US\$ per tonne)	6.7	3.0
Port Tariff for imports (US\$ per tonne)	2.1	1.5

The Port of Liverpool has gone through a series of booms and busts. In 18th-19th century cotton, textiles and the West Indies trade made it the second busiest port in the UK. Since then there have been periodic economic depressions and booms. The last upturn started at the end of the 1030s, included the period of the second World War and came to an end by the time of the UK accession to the EU and a consequent (relative) diminution in importance of American maritime trade over European trade. In 1980 on Merseyside, general cargo vessels spent an average of 21 days in a berth and were serviced by an average of 100 dockside workers and stevedores each day. Liverpool has now developed an up river multi modal terminal operation and has become a major European distribution centre for American imports, delivering goods via rail to Northern German importers within 36 hours of unloading at Liverpool container terminal. By 1998 container ships spent an average of 12 hours in the new port and were serviced by 30 men.

3.14 Impact of Containerisation on Port Worker Productivity

The following table illustrates labour trends resulting from increased containerisation.

Year	Man-Hours Worked (million)	Cargo Tons Handled (million)	Productivity (tons/per man-hour)
1960	29.1	28.5	0.98
1980	18.5	113.7	6.15
1987	17.1	157.8	9.23
1993	15.7	183.6	11.69
1994	17.0	198.8	11.69
1995	17.9	220.2	12.30
1996	18.0	215.5	11.97

3.15 Summary

In any programme of port reform there are a range of perceived advantages. There is a wish list of outcomes that each party to the negotiation of the reform process aspires to. To repeat what has already been stated several times already: this full basket of benefits will not occur without a complete vision for trade process reform, involving Government, the port authority, Customs and Government agencies, trade professionals, shipping companies, port operators and port services providers, and the trader and his trading partners. The following is a list of potential benefits to some of the main players in the trade reform process.

The Government

- The reduction of administrative and financial burdens on the Government;

- The creation of additional tax and other revenues from private operators, as distinct from frequent delinquency in tax payment from statutory bodies.
- The increase in business levels, leading to increased employment and downstream business activity.

International Implications; the National Economy

- Increased responsiveness to changes in market structures and the demand and supply chains.
- Faster adoption of technological change, of process change and new skills development.

The Port Authority

- Freedom to define corporate goals and priorities.
- Freedom from public sector constraints in time for decision making, budgets, approvals, personnel policies, pricing policies, administrative reforms and procurement.
- Ability to set precise and measurable financial targets and to set commensurate incentives and rewards.
- Accountability for targets.
- Transparency of costs, likelihood of tariffs being cost-or market-related, reduced potential for cross subsidies.
- Better distribution of costs leading to more accurate charges for both ships and cargo, leading to understandable client billing and increased accountability of trade professionals.
- Increased role for the private investor making possible a clearer understanding of the investment needs necessary to carry out his business.

The Terminal Operator

- Opportunity to recruit management and technical expertise necessary to develop the business.
- Greater potential for diversification.
- Freedom to divest businesses or to sub contract.
- Full accountability against agreed targets.
- Transparency in cost related tariffs and cross subsidies.

The Port's Customers

- Availability of appropriate services, to agreed cost and quality standards.
- Quicker response to needs and change.
- Reduction in prices and competitive services lead to increased business opportunities.

4.0 PORT BEST PRACTICE: SUMMARY

A port is a trade gateway; it is the entry and exit point for a nation's imports and exports, including transshipments and transit cargoes.

A port's success has historically depended on location: proximity to the source of resources or manufactures being exported or the proximity to sources of consumption for imports; proximity to international sea lanes and shipping routes and port efficiencies are increasingly important. Now, multimodal terminals and efficient land and internal transport are beginning to have a fundamental impact on port locations.

A port is not a single entity; it comprises a community of many sub-industries and enterprises. It serves the shipping, shipping agent and NVOCC (non vessel operating common carrier) communities. In addition to cargo carrying vessels there are tugs and lighters. Then there is the harbourside, wharves and berths and special facilities for handling the different types of cargo; storage and warehouse facilities, both pre and post Customs. The Port Authority, Customs and several Government departments such as Health, Agriculture, Fisheries, Consumer Protection, Transport, Military and Security usually have a presence at gateway ports. And then there are the organisations involved with storage and movement of goods, and logistics. These include stevedores, transport-road and rail-freight forwarders, warehouse operators, container terminal operators and storage yards, container repair operations, Customs Agents and the various branches of Customs.

There are two distinct components in the shore based shipping segment: The movement of cargo between the ship and the gate of the terminal, depot or wharf; the movement of the cargo between the customer (shipper/consignee) and the gate of the terminal, depot or wharf.

There is a complex, inter-related cost structure that determines the fee structure to importers and exporters, which ultimately flows through to consumers and impacts national trade efficiencies. The components of costs which make up fees to the point where cargo reaches the port gates can be broken down into: Direct costs of cargo movement from supplier to purchaser; indirect costs (which may be up to 15 times greater than direct costs).

Some specific cost concerns which underpin any attempt at port process reform are summarised:

- Costs and timely provision of tugs;
- High costs and low productivity of stevedoring;
- Inefficiency of terminal/truck interfaces and related demurrage costs;
- High costs and relative inefficiency of international depots;
- Complex, voluminous, uncoordinated, duplicated and overlapping, non standardised paper forms and information requirements necessary to navigate goods through ports;
- Poor use of information technology facilities for managing port processes.

- Incompatible information technology facilities, i.e. not integrated between port users and the various entities within the port;
- Varying rates and arbitrary (i.e. seemingly unjust) applications of those rates for overtime storage systems for container cargo;
- Irrational and unjustifiable systems for wharfage and additional handling charges;
- The cost and time effects of the requirements of Government authorities and agencies;
- Cost of empty container repositioning;
- Freight rates are often set within in a non competitive environment, depending on the size and location of the port.

In addition, the most common criticism expressed was that many Port Authorities have been little more than landlords taking care of safe entry, exit and berthing of ships but with no interest in the efficient movement of cargo through the ports. Users believe that ports appear to see this as the role of others.

Many of the ports in the MENA region are effectively state owned or Government controlled monopolies. They are often served by smaller shipping lines, less concerned with world best practice than the larger lines. Monopoly practices, including labour unions, have led to short working hours, uncompetitive practices and a sometimes Byzantine mixture of systems for clearance of goods involving Customs, Port Authorities, religious authorities in some cases, Government departments administering technical controls, the trade professionals, security services and stevedoring services. All of these activities can, confusingly, take place within the port gates. As a result, traditional local business practices can take advantage of this environment to extract a range of unofficial fees or taxes from traders, who pay in order to obtain priority treatment-or any treatment at all in some cases. One port in the region has documented the unofficial costs (bribery) of clearing a container shipment worth an average of \$22,500 at \$600 per consignment.

The community that developed the critique for ports quoted above also developed a model port set of requirements, which included the definition:

A port authority is the agency responsible for ensuring that the port is provided with the services, facilities and equipment to enable goods and passengers to be transferred through the ports in the most efficient and cost effective manner to meet the needs of the port's users at a commercially acceptable rate of return.

Specific requirements of a model Port Authority include:

- 24x365 service availability, or where required for specific trade, e.g. passengers, fresh fruit, hazardous cargo, etc.
- Total service package for ship owner/cargo owner or their agents.
- Ensure provision of port related infrastructure
- Most productive and cost effective movement of cargo/passengers
- Control/coordinate safety and environment
- Planning for change, growth and development
- Diversification

The context for port process reform is ideally set within a programme of overall trade process reform. The following are highlights of a model for trade process reform.

- To reform port processes; to automate processes; to introduce port management and control IT systems; to create a paperless port; to realign the roles of the Port Authority, the port community and port users.
- To upgrade Customs processes and IT systems
- To reengineer Customs work practices
- To establish a Customs Training Institute
- To install container scanners within a Customs area *outside* the port gates
- To implement pre clearance
- To implement pre and post event auditing
- To add the concept of “risk management” to the Customs IT clearance systems
- To implement electronic exchange of trade information between all port users
- To establish a national trade process reengineering and IT/electronic commerce project management entity
- To overhaul the system of trade laws and regulations
- To establish a “one stop shop” where all remaining technical controls may be issued
- To develop the IT systems of this “one stop shop” so that technical controls may ultimately be applied for and issued electronically

In addition, port IT systems need to be dramatically upgraded in functionality. This functionality too include: Administration; operational functions; higher functionality tasks, and electronic commerce: trade facilitation

The necessary prerequisites to port reform and the various modes of institutional reform that enable a port to migrate from a state owned monopoly to a fully reformed efficient port. Ideally viewed as a component in a national trade efficiency programme, the port may be owned and operated according to a variety of models, from full privatisation of ownership and operation to a joint venture between the public and private sectors, with multiple operators and owners of specific port functions.

The role of Port Corporations might now be summarised:

- The landlord function.
- Policy making, planning and overseeing the development of the port
- Regulatory, supervisory and surveillance function
- Monitoring, promotion, marketing the port and its services
- The port training function

Objectives for the reform of a port's operational and institutional functions might also be summarised:

- To promote a competitive market in port services with consequent economic and social benefits.
- To prevent misuse of monopoly and market power, including firm, operator, Government or organised labour.

- To facilitate entry into a specific or broader market, servicing the future needs of both local and international businesses.
- To facilitate efficiency in regulated industries, so that they can achieve best practice and compete at commercial levels.
- To ensure that users and customers benefit from competition and efficiency, ensuring economic benefits flow through the economy to the consumer-and the voter!

Specific initiatives for reform typically use one, or a mix of the following:

- Privatisation of the ownership and operation of ports.
- Corporatisation of a port
- Separation of the control of the maritime access routes to ports (channels) from control of land based activities
- Transfer of the regulatory powers of port authorities to other agencies.
- Regulation of prices for those services in which there is unlikely to be sufficient competition

In facilitating reform Government needs to consider:

Deregulation of port sector: eliminate bureaucratic rules, regulations and obstacles such as subsidies, cross subsidies, reserved occupations, overlaps in functions and responsibilities, and repeated Government bail outs.

Decentralisation: Governments must remove themselves from day to day operations and financial decision making.

Anti-monopoly laws: a reformed port will only operate effectively in a climate of vigorous competition. Government must protect the concept of competition.

Specific legislation: Define conditions for participation, for renewal and reversal. Options. Guidelines for valuation of equipment and properties, measures for safeguarding investor's property rights.

Anti monopoly measures include privatisation of the port. Forms of privatisation include:

Comprehensive privatisation: equivalent to the sale of an entire port

Partial privatisation: whereby only part of the assets are sold or transferred to the private sector

Full privatisation: whereby the ownership of the complete operation-but not ownership of the infrastructure-is transferred into private hands

Part privatisation, for example a joint venture between the public and the private sector.

Privatisation, corporatisation, commercialisation and deregulation refer to concepts promoting a greater role for the private sector and more freedom for the private sector in the operation of ports. In order to turn these concepts into action there are specific instruments, or modes of privatisation, that can normally be applied. These primarily include:

- Licences or concessions to operate given functions for a certain time under contractual conditions.
- Leasehold contracts, giving rights to the port infrastructure, for a certain time, under contractual conditions.
- Build Operate Transfer (BOT), Build Own Operate (BOO), Build Own Operate and Transfer (BOOT) arrangements.

In order to promote effective competitive bidding, port facilities need to be valued according to internationally approved principles, with scrupulous transparency. Valuation principles include:

- Methods based on the value of existing assets, making due allowance for depreciation, alternative use of assets, etc.
- Expected earnings projections, based on financial modelling and independent, objective input;
- Market based methods, i.e. what the market thinks it is worth;
- Port-industry specific-methods. A valuation reached by a set of rules agreed to by all parties to the potential transaction.

Port revenue streams form part of this valuation process. Revenue potential includes:

Wharfage: A charge per unit of cargo loaded or discharged by a vessel. However, particularly in the liner trades, wharfage is usually collected by the port organisation from the ship owner, who then passes it on to the importer or exporter. Typically, wharfage charges are uniform throughout a port, irrespective of which berth is used.

Berth Hire: A charge based on the length of time a ship occupies a berth (stay time). It is payable by the ship owner. Charges may vary with the size of the vessel.

Site Leases: Sites made exclusively available to a single occupant are subject to period leases. Payments may also include volume or performance based components.

Facility or Area Hire Charges: An alternative to site leases for common user berths. This concerns short term hire to a number of different operators; they are usually time-related and typically applied to stevedores.

Other factors to be considered when setting prices and agreeing contracts include key performance indicators, or measures of performance by the port operator. Typically, these would include:

- Measures of productivity, such as numbers of TEUs handled per hour;
- Measures of production, such as labour utilisation;
- Measures of resource utilisation, such as an average time ships spend in a berth, measured from arrival to departure;
- Measures of service levels, such as average time to release goods to importer.

No port or trade process reform programme is complete without a comprehensive plan for identifying and dealing with the organised labour dimension. The principal issues to be addressed are:

1. The organisation of labour
2. Sustainable employment levels
3. Streamlining of the workforce, through:
4. General contract conditions for Employment
5. Negotiating machinery for reform of industrial relations
6. General employment safeguards
7. Personnel and manpower development
8. Upgrading training capability
9. Management strategy for the introduction, implementation, follow up and monitoring of industrial relations reform

In any programme of port reform there are a range of perceived advantages for the Government, the Port Authority, the port's users (customers), the Terminal operator and sub contractors, consumers and the economy at large. Success in a programme of reform can only be achieved with careful, well researched plans. These plans must include a vision for overall trade process reform, in which ports will play a crucial role. The plans must be fully inclusive, with a voice for all participants and potential beneficiaries. Success will still need some luck, but luck generally comes to those who are well prepared.

APPENDIX