

Entry No.1

Port Cluster Strategy to Face Challenges at the Port of Belawan

By

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Brief Summary:

As the fact that the Indonesian total logistic cost, 15% from the value of the goods, is relatively higher than the average total logistic cost in Asia, 4-10%, Indonesian ports have been recognized as a bottleneck in the entire logistic chain. Thus, one way to solve this problem is by accelerating the development of ports in Indonesia. This action has been started by the introduction of a new shipping act number 17 in 2008, by which there will be a clear distinction of responsibilities between port operator and port authority. This act, off course, will change the entire Indonesian port system by involving private sector in port investment and by allowing competition in the port.

With response to that, the port of Belawan, as one of the vital port in Indonesia, has been appointed to be developed in such a way so that it can facilitate the trade flows in its region. One of the ideas for this development is to create this port to be a hub port in the western part of Indonesia due to its geographical proximity to the Malacca Straits.

Therefore, this paper is written to provide an insight for the new established authority and the incumbent port operator, Pelindo-1, on how the port of Belawan should be developed and what the challenges has to face. As a result, the port can be developed properly to reach its optimal solution. Additionally, in this paper, the author elaborates on how port cluster strategy can be positively applied in the port of Belawan resulting an increase in port productivity as well as safety and efficiency.

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List of Abbreviation

BPS	: Biro Pusat Statistik or Indonesian Statistic Bureau
GT	: Gross Tonnage
IMF	: International Monetary Fund
MLWS	: Mean Low Water Spring
Pelindo-1	: Pelabuhan Indonesia I or Indonesian Port Corporation I

Introduction

As an archipelago country, ports in Indonesia obviously play a vital role to facilitate both international and interisland trade. One of the important ports in Indonesia is known as the port of Belawan which is located at the north-western part of Indonesia as shown at figure 1, handled nearly one-fifth of Indonesia's port throughput.

Figure 1: Port of Belawan



The port of Belawan was developed in 1890¹ during Dutch colonialism for handling tobacco and was recognized as the largest Dutch East Indies' port in 1938, known as Haven Bedrijf. However, due to changing in demand from its hinterland, this port has evolved to be a multipurpose port handling variety of cargo. And, since the containerization has become more important, in 1989 a container terminal was built and it stands to become a major cargo in this port. Nowadays, this port is managed and operated by Indonesian Port Corporation I (Pelindo-1) which is a state-owned company focusing on port operation and services.

From its history, it is witnessed that the evolution of this port has mainly been driven and shaped by its cluster which involves all its stakeholders. Thus, in author's opinion, the port cluster needs to be considered in developing a port. A port and its cluster are interdependent one to the other. In few words, the port cluster might benefit as well as challenge the port for its continuity. Therefore, this paper will elaborate more on three main aspects:

- 1) Identify in depth on what are and will be the challenges of the port of Belawan;
- 2) Analyse how strong a port cluster affects the port and its development;
- 3) Twist the challenges to be the opportunities of the port of Belawan by providing some solutions.

¹ Port of Belawan, North Sumatra [accessed 26 September 2011].
Available from: <http://www.portoftacoma.com/page.aspx?cid=509> and
http://www.worldportsource.com/ports/IDN_Port_of_Belawan_217.php

Port of Belawan profile

As any other Indonesian ports, port of Belawan is facing several challenges to meet with an enormous trend in port and logistics. It occurs due to the fact that this port is a natural port having limited water depth and was not actually designed for handling larger vessels as required nowadays, as for example is its fairway which only has 9.5 m water depth and 100 m in width. In few words, there will be several geographical constraints for this port to meet with the newly designed vessels as described in table 1.

Figure 2: Port of Belawan Layout²

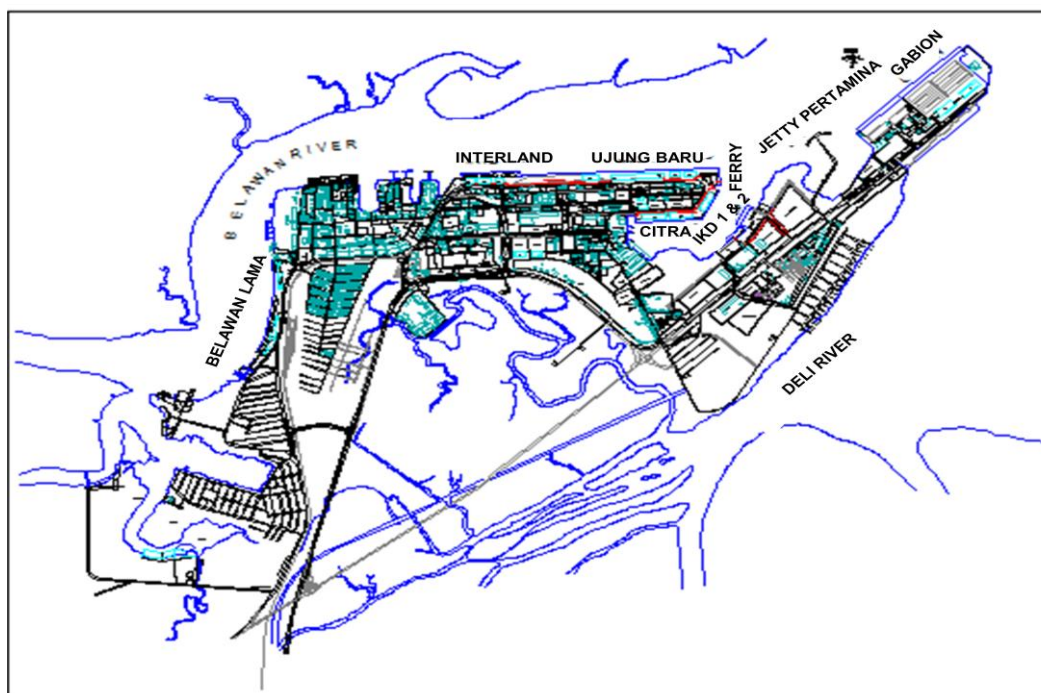


Table 1: Port of Belawan Infrastructure³

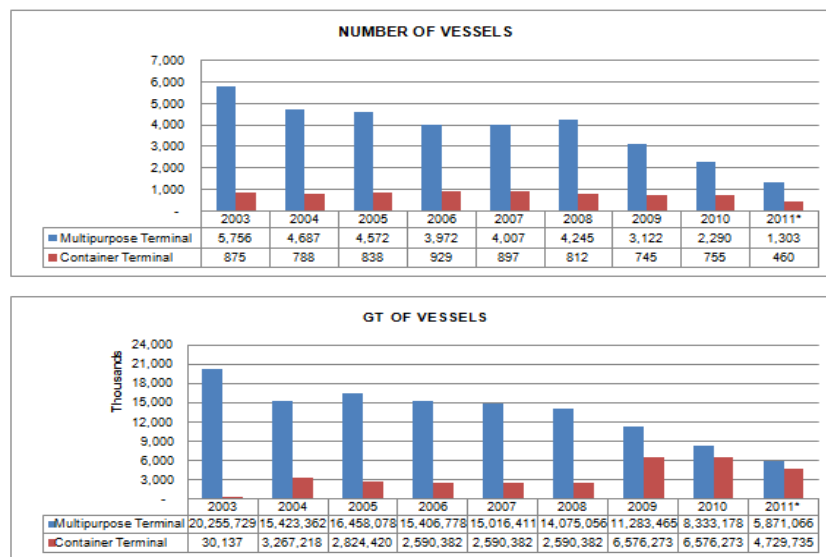
Description	Quay length	Water depth
Belawan Lama	688.7 m	4-8 Mlws
Ujung Baru	1555.8 m	6-12 Mlws
Ferry Terminal	115 m	10 Mlws
Citra	625 m	6 Mlws
IKD I	150 m	6 Mlws
IKD II	150 m	3 Mlws
Domestic Container Terminal (Gabion)	400 m	9-11 Mlws
International Container Terminal (Gabion)	550 m	9-11 Mlws
Oil jetty (Jetty Pertamina)	-	10-12 Mlws

These sort of restrictions obviously affect the number and type of vessels entering the port, influencing the performance and productivity of the port. From facts, as can be seen in the figure 3, number of vessels entering the port is facing a decline trend at its multipurpose terminal while a relatively steady trend with larger vessels, as the fact that GT shows an upward trend, at its container terminal. So, it is witnessed that shifting in carrying cargo from conventional to containerized cargo also occurs in this port.

² Technical Department Pelindo-1 branch of Belawan, 2011

³ Technical Department Pelindo-1 branch of Belawan, 2012

Figure 3: Vessel statistics at Port of Belawan⁴



In terms of management, this port was managed and operated by Pelindo-1 although it has been changed since 2008 with the introduction of a new port and shipping act number 17. This act has classified two main functions in the Indonesian port management model, changing from tool port to landlord port concept, by which there will be an established authority who is fully governmental body functioning as a regulator and terminal/port operator who will run the port/ terminal under concession agreements. The operator might be either state-owned companies such as Pelindo-1 or fully private companies. By launching this new act, it is expected that the acceleration of Indonesian port development can successfully be achieved. Consequently, not only will the total logistic cost in Indonesia be minimized but also Indonesian economy growth be triggered.

Apart from that, to analyse and assess a port, it is important to look at the port as a system which is strongly depending on its hinterland and foreland. The development in its hinterland and foreland will positively influence the development of a port. As a main gateway in the north-western part of Indonesia, the port of Belawan serving several provinces in Indonesia such as North Sumatra, Aceh, Riau and Riau Islands, etc, in which agriculture, forestry, and mining are the major commodities produced. Furthermore, from this port, around 10 km away there is an industrial area for giving added value to raw products either from local or coming from outside the area such as spareparts of machinery, etc. These all commodities are majority transported by road to and from the port. Thus, if this port could not be developed to be a transshipment hub, it is wise to underline the development strategy of this port on the growth of its hinterland and foreland. Hence, the port will function as the main gateway.

What are and will be the challenges of the port of Belawan ?

As partly being elaborated in the port of Belawan profile, in author's opinion, followings are and will be the main challenges of the port of Belawan:

A. External challenges

1. The trend of increasing vessel size with the cutting-edge technology, especially for container vessels to minimize the unit cost by gaining as much economies of scale as possible, puts a lot of pressure for the port to be developed since it was not designed for that purpose;

⁴ Pelindo-1 vessel traffic data, 2012

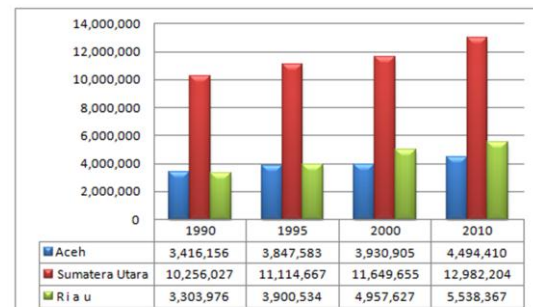
- The economy and population growth both in its hinterland and its region, as can be seen in figure 4 and 5, will also require the port to be developed to facilitate the trade flows.

Figure 4: Historical Indonesian GDP Development 2001-2012



Source : IMF

Figure 5: Historical Hinterland Population Growth 1990-2010



Source : BPS

B. Internal challenges

- The scarcity of land and water area. The former occurs due to the fact that the port has proximity to living areas where people are not fully aware of the importance of a port. Additionally, this port is also having limitation of working area because it stands on territory of city of Medan and borders to Deli Serdang regency. Meanwhile, the latter should also need to be considered to ensure safety in port operation as the fact that the port has limited width and depth in its fairway and basin;
- The geographical constraints due to its location which is not only in the estuary but also in the meeting point of two rivers, Belawan and Deli river. This adds up to another factor to be considered;
- Although currently surrounding people are not fully aware of the environment, in author's opinion, these environmental impacts need to be seriously taken into account in planning a port development. Otherwise, a port development project such as dredging works will harm the ecosystem;
- The institutional and financial problems leading to confusion who will take care this enormous investment for upgrading the port. This aspect should be engineered in such a way to govern a level of playing field in the port of Belawan.
- The level of vertical and horizontal competition in the port which will give a dynamic force for the port to be developed. Otherwise, the port users might shift their port of call.

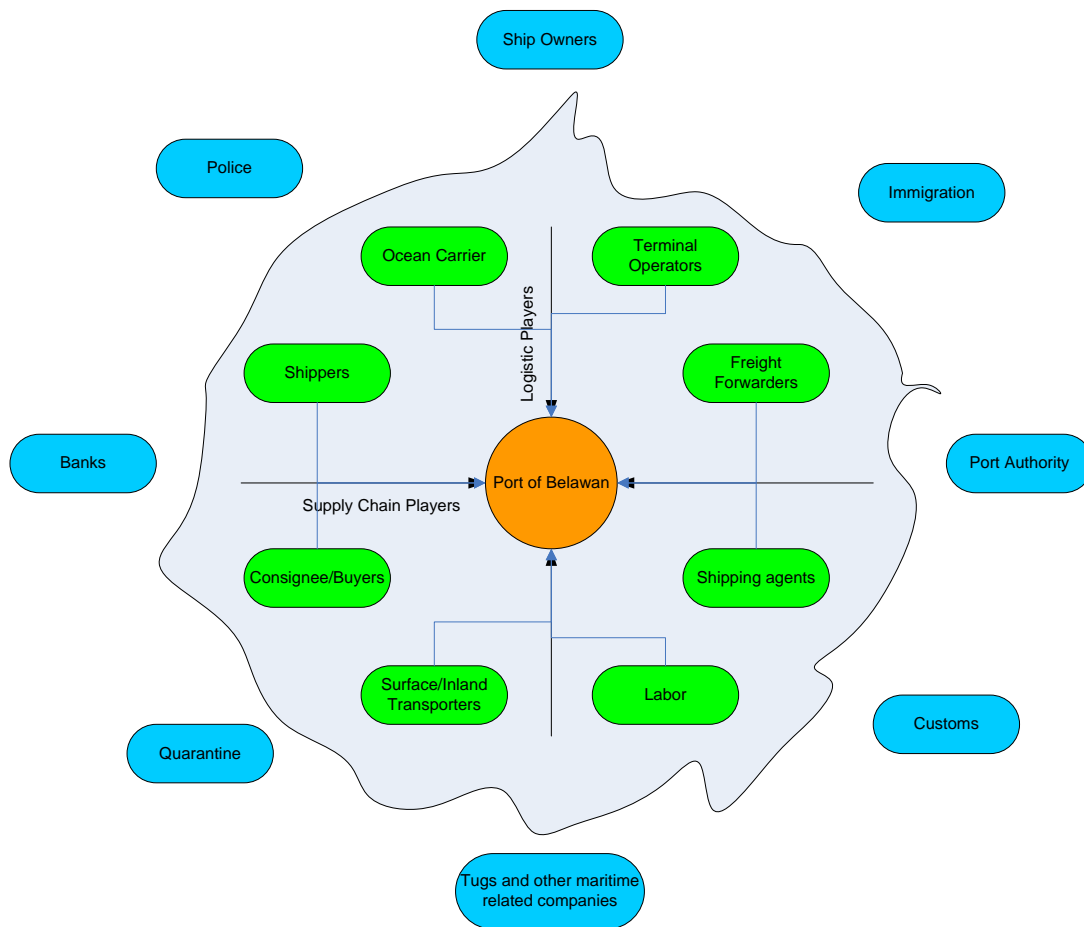
What are the solutions of the port of Belawan ?

To overcome those mentioned challenges, these are several solutions offered as follows:

A. Strategy marketing (Port Cluster Strategy)

Since the port has lots of stakeholders involved, in author's opinion, the "port cluster" strategy is the best action to be taken when drafting a marketing strategy of the port of Belawan. In this strategy, the idea of port competition and collaborative relationship appears. Having defined a port cluster, the role and interest of each parties can be identified. This will provide a better understanding of managing a port. By doing so, the new established authority can strengthen the port profile internally while at the same time will be able to compete externally.

Figure 6: Port of Belawan Cluster⁵



Looking specifically at the port of Belawan profile, in author's opinion, the best visionary approach of the port is to be the main gateway instead of a transshipment hub, which is very important to state. Otherwise, the investment spent will not properly result in the optimal port development. This stands to reason when looking at lots of geographical constraints it has, requiring an enormous fund available.

Nevertheless, the port performance and productivity can still be improved by establishing a smooth operation in the entire logistic chain. So, cooperation and competition are key factors in its marketing strategy. It means that on one hand, the port management should cooperate with both local government and private sectors to build an inland access connectivity and a distribution center outside the port area in which cargo can be transferred and dwelled. On the other hand, the management should establish a level of competition in the port area by allowing more than one terminal/port operators. So, the handling activities can be accelerated as well as the burden of financing can partly being shifted. Afterwards, the involvement of surface or inland transporters is also playing a vital role as part of the chain.

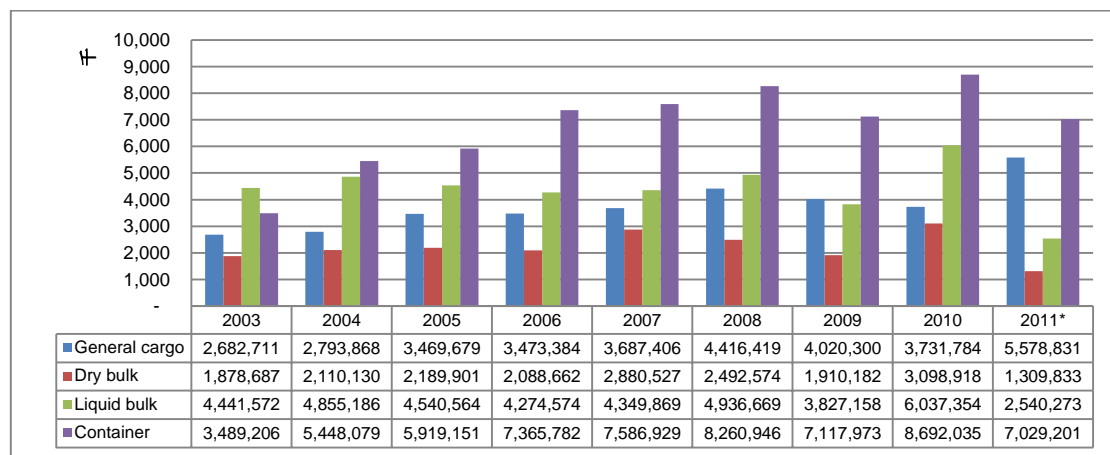
B. Infra and Suprastructur Improvements

Having identified its cluster and defined its strategy in facilitating the trade flows, then several infra- and supra-structure improvements can be executed such as:

⁵ Author's elaboration

1. Deepening the marine infrastructure such as port basin, turning basin, fairway, etc to be able to accomodate safely larger vessels entering the port, has to be done, taking into account the environmental aspects. So, the environmental impact assessment should be conducted in advance. Moreover, providing clear aids to navigation such as bouys, lights and communication channels is a must to ensure safety in operation.
2. Since the container cargo shows an upward trend in the port and is counted as the main cargo in the port of Belawan, as shown in figure 7, the extension of container terminal should be done including its container yard and handling equipments to speed up the operation.

Figure 7: Cargo at the Port of Belawan⁶



C. Safety, Productivity and Efficiency

A port development should not only focus on having as much traffic as possible. Yet, in author's opinion, the increase in port productivity should be in line with the increase in safety and efficiency.

The state of art to do so is to establish a better operational and management system in the port. Indeed, the role of information and communication technology plays a vital role. The key actors in the port cluster should be able to interact one to the other by means of clear communication. For instance, a vessel shall be obliged to provide information of its arrival or departure 24 hours in advance. By doing so, all required assistance to ensure safety in operation can be well-planned such as tugs, pilotage, etc.

Conclusion

From the port of Belawan profile, challenges and proposed solutions, we can see that a port nowadays has become a more dynamic industry. It occurs due to the globalization in trade and logistic sectors, demanding the port to be developed.

This trend has shaped a port, like Belawan, in such a way to be an active part in the logistic chain. Therefore, the collaborative relationships and competition should be underlined in its strategy. In author's opinion, the best approach for Belawan to be able to face current and future challenges is the port cluster strategy by defining the logistic and supply chain actors. Eventually, the optimal port development can successfully be achieved.

⁶ Pelindo-1 Cargo Traffic Data, 2012

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Entry No.2

LOS ANGELES OPEN AWARD

Title of the Essay : What are the current and future challenges facing Sri Lanka's ports?

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Synopsis :

The Port of Colombo and other ports coming under the management of Sri Lanka Ports Authority are carrying out its operations in a fiercely competitive market environment. Regional ports in the Indian Ocean are being rapidly modernized and competition is becoming increasingly aggressive. On the other hand the present government in its post-conflict development endeavors has prioritized achieving sustainable economic growth through strategic port management by utilizing Sri Lanka's geostrategic location in the east-west sea lane.

Managing a port can no longer be reduced to an intuitive exercise. Today, the external environment of organizations is becoming extremely complex. National boundaries appear to be melting away in many contexts and customer demands have escalated in an unprecedented manner. We are no longer living in a territorialized world and are experiencing the realities of globality, the sequel of globalization.

There is no time for complacency in hyper-competitive business. Therefore, we should act fast. This essay spells out tersely the current and future challenges that the Sri Lanka Ports Authority finds itself confronted with. It also provides a roadmap to be followed.

NB The views and opinions expressed in this essay are solely those of the writer and should not be construed as the official stance of Sri Lanka Ports Authority.

What are the current and future challenges facing Sri Lanka's ports?

Organizational background

The Sri Lanka Ports Authority (SLPA) currently falls within the purview of the Ministry of Ports and Highways and is the apex body charged with the responsibility of managing Ports of Sri Lanka; Ports of Colombo, Galle, Trincomalee, Oluvil, KKS, PPD and the Magam Ruhunupura Mahinda Rajapaksa Port.

Since 1918, the Port of Colombo had been administered by the Colombo Port Commission, a Government Department which was responsible for the procurement and maintenance of cargo-handling equipment and other infrastructure, pilotage services, docking and slipping. The government provided required funds for all its activities whilst Stevedoring and shore handling activities were in the hands of several private Wharfage Companies. In 1958, the Port Cargo Corporation was set up parallel to take over these activities performed by a multiplicity of operators. The Port Tally and Protective Services Corporation was formed in 1967 in order to perform on-board tallying and watchmen services on behalf of Agents.

The Sri Lanka Ports Authority was established on the 1st of August 1979 under the Sri Lanka Ports Authority Act, No. 15 of 1979 on the 1st of August 1979, effecting the merger of the Colombo Port Commission Department and the two existing statutory Corporations. The Ports Authority does not receive financial assistance from the government but operates on its own revenue and resources. The SLPA is therefore the sole administrative body of the Port of Colombo which is situated at latitude 6-57' N and longitude 79-51' E on the West Coast of Sri Lanka. It is one of the finest artificial harbors in the world spread across 24.5 hectares enclosing deep-water harbor providing secured and ample shelter to various types of ships throughout the year.

Current Challenges

The Port of Colombo and other ports coming under the management of SLPA are carrying out their operations in a hyper- competitive market environment. Other regional ports in the Indian Ocean are being rapidly modernized and competition is becoming increasingly aggressive. On the other hand the present government after decisively defeating terrorism on Sri Lankan soil, in its development endeavors has prioritized achieving sustainable economic growth through strategic port management by utilizing Sri Lanka's unique geostrategic location in the centre of the South Asia in the Indian Ocean, located equidistant from the Gulf and Singapore on the main sea route from Europe, the Far East and Australia via South Asia and at the Southern tip of the Indian Sub Continent. It is endowed with a vast potential for economic and trade expansion in the future. Therefore, current issues faced by the Sri Lanka Ports Authority which inter alia include high cost of operation, excess staff, delays in turnaround of vessels, delays in clearing of cargoes, inadequate yard capacity, low operation productivity etc., should be addressed without delay in order to be in tune with government's wishes.

In order to address the excess staff issue, SLPA implemented a **Voluntary Retirement Scheme** (VRS) to shed its excess “fat”. This Scheme came to effect in April, 2011 and the SLPA has been able to achieve its expectations of staff retrenchment program up to a lesser extent than desired.

Ports are vital nodes which facilitate trade flows and to a lesser extent, tourism flows. Therefore, it cannot be overemphasized that their operational efficiency can have a considerable impact upon the wider economy. Alfred Baird of Napier University in Scotland opines four different models of port administration that are in place in different countries and are enumerated below.

1. Pure public sector
2. Public/private
3. Private/public
4. Pure private sector

Ports can have any combination of three different functions namely, Land Ownership, Regulation and Cargo Handling that are controlled by both public and private sectors. Even though it is highly debatable as to what combinations of these functions are held by the state and what combinations should be left to be controlled by the private sector, many ports by getting the private sector involved have made significant strides. They have become much more commercially focused and have gone even to the extent of exploring other value-adding and non-core commercial activities such as development of marinas, industrial parks, car park developments and cruise-liner businesses. In Japan for instance Port and Harbour Act prohibits the state sector from being engaged in port related business that the private sector is capable of carrying out more efficiently. However, SLPA has been constrained in this respect from getting the private sector involved in the activities of the Port of Colombo by the not-so-conducive features of the legislation in force that governs SLPA.

Future Challenges - Threats posed by the development of South Indian Ports

Sri Lanka’s geo-strategic location on the east-west sea lane, close to the shipping lanes that link Asia to Europe and the rapidly expanding markets of the Indian Sub-Continent (ISC), gives its ports a natural advantage. Growing trade in the ISC and its increased integration with the rest of the world have created demand for enhanced port facilities, giving Sri Lanka the opportunity to increase its volumes and market share of transshipment traffic. The current propensity towards port development is likely to be a sound game plan, allowing Sri Lanka to benefit from increased trade. But there is no time for SLPA to become complacent about progress.

Although a geo-strategic location is a desideratum, it alone is not sufficient to achieve the status of a regional trade and logistics hub. It should be supplemented by a weighty volume of base cargo. This apart, as the South Asia region is becoming highly competitive, addressing capacity constraints and modernizing port operations with state-of-the-art technologies are of paramount importance.

Sri Lankan Ports face stiff competition from regional counterparts. India's over-ambitious port development activities and changing sea routes appear to pose a threat to Sri Lanka's ambition to establish itself as a shipping hub. Ports of Sri Lanka are currently playing the role of a limited gateway to the southern and eastern parts of the Indian peninsula, providing transshipment services for the import and export trade of the southern Indian states such as Tamil Nadu, Karnataka, Hyderabad, Kerala and Kolkata. Major shipping lines call over at Port of Colombo primarily to transship containers to India's southern ports.

Furthermore, with major Port development projects in progress on the south-west and south-east coasts of India and price-matching by the Indian government to attract Sri Lanka's transshipment volumes, Sri Lanka will find it difficult to maintain its current 50% share of ISC transshipments. Current Indian Port pricings are three times higher than that of Sri Lanka. If prices are lowered, there is a possibility of a potential threat to the said 50% transshipments handled by Sri Lanka, which amounts to USD 52 million, according to published literature.

In September this year the Government of India approved relaxation of Cabotage Policy under the Merchant Shipping Act, 1958 for transshipment of containers to and from the International Container Transshipment Terminal (ICTT) at Vallarpadam by diverting traffic from other hubs such as Colombo and Salalah in Oman, UAE. The primary objective of relaxation in Cabotage Policy is for ICTT, Vallarpadam to attract cargo destined for Indian ports which are presently being transshipped at Colombo and other foreign ports. This initiative is expected to promote transshipment of Indian cargo from ICTT, Vallarpadam and reduce dependence on nearby foreign ports. This phenomenon could also pose a huge threat to Colombo.

Vertical/horizontal integration of the Port Business

Unless, Sri Lanka increases substantially its base cargo in the form of export products to the USA, Europe and Asia, Sri Lanka may not be in an enviable position to lure main line vessels to Sri Lanka. Attracting Foreign Direct Investment (FDI) for export-oriented industries is one model for generating base cargo and also for economic take-off for developing countries. Apart from foreign exchange earning, these industries employ local labour, generate jobs and transfer technology as well.

The volume of base cargo could also be increased by expanding services in the form of value addition through Sri Lanka. It could be offered by way of developing our logistics capabilities to provide the most modern warehousing infrastructure facilities for temporary storage and deliver through "Just-in-time" supply chain management systems to large manufacturing companies in the neighbouring ISC countries. For example, a major area of concentration can be found in the automotive sector, where Original Equipment Manufacturers (OEMs) have shifted their production units to India due to cost effectiveness.

In sum, the port development programs should be aligned with the most modern port development strategy – *Transforming port from mere interface between maritime transport and land transport into hub of seamless logistics chain and logistics value-creator or value-adder* - .

A plethora of examples could be cited following the above strategy. Rotterdam Port, the central location in the EU is a multi functional port offering Container, logistics park,

industrial zone facilities etc.,. Port of Dubai and Port of Salalah, the central location among Asia, Europe and Africa, have attracted global companies by offering tax reductions etc., to establish logistics oriented facilities. The Dubai Logistics City and Jebel Ali Free Trade Zone house more than 4,000 companies from more than 100 countries performing logistics operations. Indonesia's proposed Economic Corridors also merit consideration in this context.

The progress thus far made by SLPA in this respect is nevertheless far from satisfactory. SLPA recently floated a Request for Proposals with a view to establishing port-related business in the free zone adjacent to the Magam Ruhunupura Mahinda Rajapaksa Port premises. However, SLPA has thus far been able to ink agreements only with seven investors to establish port-related businesses in the free zone. The reasons for the somewhat lukewarm interest among the prospective investors could be manifold and warrant scrutiny.

Policy Framework

Sri Lanka should have a conducive policy framework to attract Foreign Direct Investment (FDI) and should encourage Public Private Partnerships (PPP) for port infrastructure development as the government alone cannot finance highly capital-intensive port projects.

Generally, private capital flows across the borders in this highly-globalized world, because it allows capital to seek out the highest rate of return. Countries often choose to exempt some of its revenue when they reduce corporate tax rates in an attempt to attract FDI from other countries. FDI also allows the transfer of expertise and technology, particularly in the form of varieties of capital inputs, which cannot be obtained through financial investments or trading in goods and services. The best solution for developing countries to increase their overall amount of inward investment of all kind is to focus on concentrating on improving the environment for investment.

The Dubai International Financial Centre is a phat case in point where a 110 acre free zone whose commercial transactions are governed by British Common Law. This is the first instance of a sovereign nation deliberately committed to apply the laws of another sovereign nation within its territorial borders. Because legal systems largely determine the rate of entrepreneurial wealth creation around the world, Dubai's decision to substitute a more effective system of commercial law, while maintaining traditional Sharia law for criminal cases, represents a unique innovation in wealth creation.

Sri Lanka should be more cautious in promulgating laws relating to investment. Still there are certain pieces of legislation in our statutory book, which tend to create mistrust and suspicions in the minds of potential investors. Such laws may be incongruous with the economic realities in this globalized era and would impede not only FDI inflows but also the local entrepreneurs who are in search of business windows for investment.

Entrepreneurship is not just involved taking risks but it demands a great deal of human creativity and management. Therefore, it is the onus of the government of Sri Lanka to focus on formulating more investor-friendly laws that are in the best interest of the country's economic development to enhance "creative enthusiasm" of entrepreneurs thereby ensuring FDI into the country.

Entry No.3

Title of Entry

LOS ANGELES OPEN AWARD-2013

Title of Theme

What are the current and future challenges facing my port or my country's ports?

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Abstract

Adani Ports & Special Economic Zone Limited (APSEZL) is the single largest private port in India having the latest infrastructure facilities for handling all kinds of Bulk, Break Bulk, Liquid and Container Cargoes. Port industry has a very complex organizational structure. The performance of Indian ports does not compare favourably with that of efficient international ports on various important parameters- capacity, productivity and efficiency. In international terms, labour and equipment productivity levels are still very low due to the outdated equipment, poor training, and low equipment handling levels by labour, uneconomic labour practices, and idle time at berth, time loss at shift change. The current issues faced by Indian ports are based on competitions and strategic marketing, collaborative relationships, Infrastructure improvements, Safety, productivity and efficiency. The port-related business, though as old as the human society, is very vibrant and relevant to our daily lives; it also offers many exciting challenges and opportunities. One of the primary challenges is to maintain the high-level of services that Adani Ports and Special Economic Zone Limited has been reputed for, and hence allow us to get ready for the next millennium. To achieve this goal, many aspects of the port and terminal operations must be carefully researched for continual improvements. The computer and information technologies can offer tremendous advantages in every aspect of the planning, simulation and decision making. To manage the complexities involved and obtain timely results, the simulations are carried out with in-house expertise.

Adani Ports & Special Economic Zone Limited (APSEZL) located on the northern coast of Gulf of Kutch, along the western coast of India is most convenient gateway for America, Europe, Middle East, etc. APSEZL has over the years, backed its belief of sustainable and environment eco- friendly development, with measures on the ground which have resulted in desert and arid regions witnessing green cover and its employees and nearby villages and other stakeholders reaping the benefit of conducive, safe and healthy environment in their day to day lives and trade and commerce. The results have been rather satisfying. A running simulation system constructed and non-trivial speedups obtained. This system, although still in research stage, will be a useful basis for future research and developments in this area. The completed result will enable the port designer and planner to evaluate different options more comprehensively in shorter time, and thereby, provide a higher-level of service while using resource more efficiently.

1. Competition and Strategic marketing

The current issues faced by APSEZL & other Indian ports are multiple and complex. The global market place, with powerful and relatively footloose players, extensive business networks and complex logistics systems creates a high degree of uncertainty in the port industry and ports with the question of how to respond effectively to market dynamics. The focus of port competition is gradually changing, as are the roles of the various stakeholders involved.

The competitive position of a APSEZL& other Indian ports does not depend solely on its administrative structure; it is more a matter of commercial attitude and mentality. Port economics has indeed become more a matter of management style. Port management objectives nowadays are much more directed towards efficiency than to distributional equity. Commercialised and/or corporatised ports might find difficulties in avoiding politicisation of the so-called technocratic port organisations, as they often rely on external political decisions. The establishment of an appropriate legislative framework that guarantees an efficiency oriented approach is one of the main challenges to port policy makers.

Modern ports must be capable of accommodating larger port clients, who possess strong bargaining power vis-à-vis terminal and inland transport operators. As such, port authorities must not expect to attract cargo simply because they are natural gateways to rich hinterlands. Major port clients concentrate their service packages not on the ports' sea-to-land interface, but on the quality and reliability of the entire logistics chain. Capturing and keeping important clients on a sustainable basis requires integrated service characterised by a high level of reliability and flexibility, short time-to-market, as well as non-market conditions such as transparency within efficient governance structures. The major challenges facing Indian port authorities are

- Rivalry among existing competitors
- Threat of new competitors
- Potential for global substitutes
- Bargaining power of port users
- Bargaining power of port service provider

These forces will impact driving requirements for port expansion, service improvement, pricing decisions and other management actions which will emerge largely dependent on how port authorities strategically position themselves in the evolving competitive landscape.

Major Challenges

India's ports sector has witnessed growth, operational, capacity enhancement and investment related at an accelerating pace. There are still certain challenges that threaten the growth of the industry and must be countered to ensure smooth operations and attract investments into the sector. The various challenges are regulatory, infrastructure and operational.

- **Regulatory**
 - Long gestation period
 - Environment Policy
 - New regulatory policy

- **Infrastructure**
 - Capacity limitation
 - Poor road network within ports
 - Inadequate cargo handling equipment / machinery
 - Poor hinterland connectivity
- **Operational**
 - Inadequate IT implementation
 - Labour related challenges
 - Insufficient dredging capacity

2. Collaborative relationship

Trends in International and Domestic trade

The challenges facing the Indian ports and intermodal industries on solving environmental problems while growing to meet the needs of increasing international trade through the Ports are

- Managing project execution risks and pressure on capital structure and returns.
- Cost overruns and mismatches between commencement of debt repayments and revenue generation.
- Rising interest rate scenario is an additional challenge for developers of new projects.
- Exposed to high cargo concentration risk because of the cargo specific nature of handling facilities and/or high dominance of particular cargoes in overall volumes.
- Incremental business and financial risks, scope of business to investments in other port ventures, in India or overseas.
- Cargo segments like containers because of the bunching of capacities in close proximity
- Inefficient port services Cargo handling.
- Cost-inefficiency and non-competitiveness of the cargo
- Long waiting time.
- Turnaround time at ports and meeting global standards
- Shipping lines that deliver the goods to the ports
- Ports terminal operators
- Unload the cargo and ready it for transport by truck and rail
- Trucking companies and railroads that deliver the goods to intermodal transfer centres
- Policy makers and governmental agencies responsible for establishing the rules by which the ports operate
- Communities in the vicinity of both the port and the roads along which the goods travel.
- Raise awareness within the community, including port workers who reside near the port, about the role played by the ports in the local/regional economy and the steps being taken by key stakeholders to improve the relationship between the ports and their neighbours.
- Explore opportunities and policy options to further common goals.
- Establish a means for on-going communication among stakeholders to ensure that dialogue is proactive and not reactive.
- Supply side constraints persist with progress being tardy on proposed developments
- Midst of medium to large scale capital expenditure programmes.
- lack sufficient draft for large crude tankers

3. Infrastructure improvements

- Weak hinterland connectivity and insufficient water depths is a major challenge for most Indian ports, thus reducing their capability of leveraging economies of scale.
- Despite investments from the private sector that are encouraging the modernization and development of ports, infrastructure continues to be a major issue due to delayed clearances from the government.
- The situation of limited capacity and high demand has inevitably resulted in port congestion. This results in overstretched berths leading to pre-berthing delays and higher ship turnaround time at most of the Ports especially the Major Ports
- Productivity is generally low as most of the Ports are not mechanised and are heavily dependant on manual handling. A relatively large, minimum initial capacity of basic infrastructure is required for technical reasons.
- Initial construction and port expansion require large amounts of capital.
- 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.
- Enhance connectivity of Ports
- Technological barriers or lower levels of technology & lack of coordination amongst stakeholders
- Institutional structure(Trusts versus Corporatized entity)
- Synergy with trade and industrial policy (SEZs and FTZs).
- High inland transit costs, connectivity constraints influence cargo flows/costs.
- Captive versus common carrier terminals
- Inter port and intra port competition
 - Inter port competition constrained by hinterland economic activity, connectivity & inland transit costs
 - Intra port competition can serve to mitigate the pricing power
 - Intra port competition may be ineffective in situations where ownership is concentrated
- Land acquisition and environmental clearance
 - Long gestation period for port projects
- Scale of operations at Indian Ports
 - Fragmented and small ports
 - Combined throughput at major Indian Ports
- Draft limitation restricts access of large vessels to Indian Ports resulting in
 - More number of ship calls leading to congestion
 - Higher demand for berthing
- High quality port infrastructure

Entry No.4

TITLE OF ESSAY: THE CURRENT AND FUTURE CHALLENGES FACING MY
PORT [DAR ES SALAAM PORT, TANZANIA]

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SUMMARY

This essay identifies the major Dar es salaam port challenges among many other challenges facing the port industry as a whole. A brief on port performance is given in order to lead the reader to the problems facing the port right from the beginning of this essay. The major current and future challenges have been explained followed by suggested practical solutions to solve these challenges.

This essay has been written to fulfill the requirement for participation in the IAPH Essay contest so as to qualify for the Los Angeles Open Award, 6-10 May, 2013.

This essay is based on the author's line of thinking considering priority areas that the port should focus on in order to achieve the organization mission of providing world class maritime services and promote excelling total logistics services in the Eastern, central and Southern Africa region.

THE CURRENT AND FUTURE CHALLENGES FACING MY PORT

[DAR ES SALAAM PORT]

1.0 INTRODUCTION

1.1 Location

The port of Dar es salaam is located at 39⁰E and 6.5⁰S. It is found in Tanzania along the East coast of East Africa. It has an immediate hinterland of about 6 countries with a total population estimated at 162.4 Million (www.indexmundi.com). Countries that are served by the port include D.R. Congo, Rwanda, Burundi, Zambia, Malawi and Uganda (Please see Map 1 below).

Map 1: Location of Dar es salaam Port with hinterland



1.2 Port capacity

The port has a rated annual capacity of handling 9.1 million metric tons of cargo divided into dry general cargo – 3.1 million tons and bulk liquid cargo – 6.0 million tons. A total of 400,000 containers (in TEUs) can conveniently be handled per annum.

The port can handle vessels of the second generation, with maximum draft of 10.5 metres at chart datum, LOA of 234 metres and a beam of 39 Metres. Berthing and sailing delays are sometimes experienced mainly due to tidal variations estimated at 2.0 metres. There is an off-shore oil handling facility capable of handling vessels of 150,000 dwt.

1.3 Role in national economy

The port handles about 95% of the country's international trade and employs about 2,500 people as port staff and about other 500 people working with the port as Shipping agents and Freight forwarders.

1.4 Competitive position

(i) Competitive advantage

The port enjoys one major sustainable competitive advantage namely "Location." It has shorter geographical distances to its markets than competing ports, connects to its markets by road, rail and lake services since Tanzania is surrounded by 3 major lakes of Tanganyika, Victoria and Nyasa.

Another competitive advantage is the prevalence of peace and stability in the country relative to neighbour countries of Kenya, Uganda, D.R. Congo and Rwanda.

(ii) Competition

The port shares markets of Uganda, Rwanda, D.R. Congo and Burundi with Mombasa port. It also shares the Zambia market with the ports of Durban, Beira and Walvis Bay.

1.5 Administration

Dar es salaam port is owned by the Government. It is a landlord port and also an operator. It is managed by the Tanzania Ports Authority. Administration of the port is vested in the Port Manager.

2.0 PORT PERFORMANCE: 2007 - 2011

2.1 Vessel traffic

For the past 5 years since year 2007, the number of deep- sea vessel calls was decreasing at an average rate of 1.1% per annum whereas the size (GRT) was increasing at a rate of 12.2% per annum. In year 2011, a total of 970 deep sea vessels called at the port (*Appendix I*).

2.2 Cargo traffic

2.2.1 Overall cargo traffic

For the past 5 years since year 2007, overall cargo traffic has been increasing at an average rate of 8.7% per annum.

In year 2011, a total of 10.4 million tons were handled, out of which 3.7 million tons (36%) were bulk liquid cargo and the remaining 64% were dry cargo (*Appendix II*).

By October, 2012, imports stood at 83%, exports at 16% and transshipments at 1% of total cargo handled. Transit cargo contributes 36% of total cargo handled leaving domestic cargo at 64%.

2.2.2 Container traffic

Container traffic experienced an average increase of 9.3% per annum. Imports contributed to 48.9%, exports 46.9% and transshipments, 4.2 %. On average, 57% of the containers (in TEUs) were transiting to neighbouring countries and 43% were for the domestic market. By October 2012, the ratio of domestic to transit traffic was 45% to 55% respectively.

About 62% of the containers loaded is made up of empty containers! (*Appendix III*).

2.3 Productivity

For the purpose of this paper, 3 indicators have been selected to for discussion on the major challenges facing the port.

2.3.1 Ships' turn-around time

Container ships' turn-around times have been high; reached 10.5 days in year 2008 when the port was congested and by October, 2012 it was 8.3 days per ship.

These high turn- around times are largely contributed to by high waiting times before ships are berthed. For the past 5 years, waiting times contributed 64.4% to total turn-around time. (*Table 1 below*).

Table 1: Ship's turn-around time: 2007 – Oct. 2012

CONTAINER SHIPS' TURN-AROUND TIME: 2007 - Oct. 2012						
					(Average days/Ship)	
	2007	2008	2009	2010	2011	Oct-12
Total time	6.2	10.5	8.2	6.3	6.8	8.3
Waiting time:	4.3	7.2	5.0	3.6	4.5	4.7
%ge of total round time	69.4	68.6	61.0	57.1	66.2	56.6

Source: Dar es salaam port Statistics Office

2.3.2 Import full Container dwell times

Container dwell times for domestic and transit containers are still high and the rate of improvement is still low. Domestic containers stay in port for about 10 days and transit containers for 14 days. One of the major factors encouraging high dwell times is weaknesses in the Port tariff that allows a grace period of 7 and 15 days for domestic and transit containers respectively. (*Table 2*).

Table 2: Import full container dwell times: 2007 – Oct. 2012

CONTAINER DWELL TIMES: 2007 - Oct. 2012						
					(Average days/Container)	
	2007	2008	2009	2010	2011	Oct-12
Domestic containers	19.8	25.4	18.8	13.9	11.5	9.7
Transit containers	22.0	29.3	21.6	16.3	17.1	14.4

Source: Dar es salaam Port Statistics Office

2.3.3 Berth occupancy (%)

Container and oil terminal berths are constantly occupied leaving little room for maintenance when required. In both cases the occupancy rate is over 80%. This is largely caused by low quay productivity and inadequate number of berths for these cargoes. (*Table 3*).

Table 3: Berth Occupancy for Container and Oil tanker ships: 2007 – Oct. 2012

					(Average days/Container)	
	2007	2008	2009	2010	2011	Oct-12
Container vessels	71.2	87.4	83.2	80.3	83.0	87.9
Oil tankers	78.1	79.4	88.9	90.8	91.8	86.6

Source: Dar es salaam Port Statistics Office

3.0 MAJOR CHALLENGES FACING THE DAR ES SALAAM PORT

Port challenges can be explained into 2 major groups; current and future challenges.

3.1 Current Challenges

- (i) To exploit the advantage of geographical location
Although the physical distance to our markets of e.g. Rwanda, Burundi and D.R. Congo is shorter than it is to our competitor in these markets, Mombasa port, the port has not been able to exploit this advantage fully because:-

- The economic distance to these markets is not cost effective due to non-tariff barriers that result into high transit times and high route costs.
 - The level of service given by the port is low causing ships and cargo to spend more time in port.
- (ii) To improve facility utilization
Some operational areas in the port are underutilized whereas others are over utilized. For example, the container and oil terminal berths are more utilized than multi-purpose berths.
- (iii) To reduce ships' time in port
The current average container ship's turn-around time is 8.3 days per ship. This has been the centre of Shipping Agents' complaints against the port whereby the charter cost is estimated at USD 20,000 per ship day in port.
- (iv) To reduce container dwell times

Container traffic has been growing at an average rate of 7.5% per annum for the past 5 years since year 2007. Container off-take from the port is slow as it relies on only road transport which transports about 99.7% of the containers while the remaining 0.3% go by rail.
- (v) To change organizational culture/thinking

The business environment is always dynamic and it is especially so, for the port business. Information technology for example, has transformed the way companies conduct business. In order for the port to be competitive, it must adapt itself to the changing environment. Modern business, among other things, demands the following to be in place:-
 - Integrated mobile workforce
 - Adaptation to changes in information technology e.g. computerization of port processes and the use of RFID technology
 - Quality asset management structure
 - Ability to respond to the sometimes conflicting stakeholder expectations.
- (vi) To improve safety and security levels

The port handles different types of cargo including hazardous cargo. The port environment is prone to accidents. The port is closer to pirates' operational zone.
- (vii) To withstand competition posed by Mombasa port

The port shares part of the hinterland with Mombasa port. Rwanda, D.R. Congo, Burundi and Uganda are also served by Mombasa port.

By year 2011, the share of Dar es salaam port in Uganda market is only 1.6% whereas Mombasa takes 98.4%. (*Appendix IV*).

- (vii) To secure financing for port projects

In a bid to upgrade the port to meet customer demands, many projects have to be undertaken. The port cannot bear these costs.

3.2 Future challenges

The following constitute future challenges:-

- (i) Transforming the port into a hub of seamless logistics chain and value creator rather than a node in the transport chain: It has to ensure that the logistics services are integrated and an updated IT infrastructure is maintained.
- (ii) Environmental conservation
Issues like air quality (e.g. ship emission control), waste management, water quality and visual quality should be considered and strategies should be put in place to address them.
- (iii) To accommodate changes in shipping technology
The Container terminal was formerly designed to handle 4 ships but currently can berth only 3 ships due to an increase in the length of the vessels calling at the port.

4.0 SUGGESTED PRACTICAL SOLUTIONS TO THE CHALLENGES

4.1 Sustainable competitive advantage

Location can be a sustainable competitive advantage if:-

- Rail operations are improved to connect the port to inland regions bordering the 3 East African Great Lakes of Tanganyika, Victoria and Nyasa.
- Barges and ships are purchased to transfer cargo between transit markets along the lake coasts and the railway terminals on the part of Tanzania
- Road transport infrastructure is improved in quality and coverage
- Non-tariff barriers such as multiple road blocks along high ways and red-tapes at border posts are reduced
- Adequate and modern equipment is acquired and automation of operations and security is attained.

4.2 Facility utilization

- Convert 2 multipurpose berths into container handling berths to relieve container terminal berths of high occupancy rates.
- Increase the use of the off-shore bulk liquid facility to relieve the oil terminal of vessel congestion.

- 4.3 Ship's time in port for container vessels
- Cut ships' waiting time by converting 2 multipurpose berths into container berths to add up to the existing 3 berths, meanwhile improving performance for both the container and the multipurpose terminal operations.
- 4.4 Container dwell times
- Review port Regulations to reduce grace period for domestic cargo from 7 days to 3 days and for transit cargo from 15 days to 5 days. However, this will need rehabilitation in customs clearance processes (modernization) from document submission to payment of the necessary dues and charges.
- 4.5 Organizational thinking
- Recognize the employees as first customers and move to motivating and building their capacity including equipping them with facilities necessary to provide quality services.
 - Manage port assets to ensure optimal use and cost effectiveness so as to realize savings in cost that can be used for further investment.
 - Collaborate with logistics service providers to ensure total service quality of the supply chain.
- 4.6 Safety and security
- Collaborate with advanced countries in order to acquire skills, techniques and the necessary technology. This should include the formation of committees at work place to conduct and promote safety awareness campaigns and the application of 'community policing' to enhance security.
- 4.7 Competition
- Have pro-active rather than re-active strategies e.g. creating port capacity ahead of demand. This needs extensive research that will guide port development plans.
 - Conduct competitor analysis to understand their strategies, strengths and weaknesses, and make use of this knowledge to plan and implement timely.
- 4.8 Financing port projects
- Involve private sector participation globally while being careful with the formulation of the contracts evolved to ensure that business or national interest is preserved.
- 4.9 Transforming the port into a hub and a value creator
- Integrate customs clearance processes to create value in the whole logistics chain
 - Encourage the establishment and use of bonded zones in which most of the activities currently performed in the port can be shifted to these zones and leave the port to concentrate on core activities.

4.10 Environmental conservation

- Review Environmental policy in view to accommodating current environmental concerns.
- Involve communities living around the port and port users in environmental conservation
- Enact by-laws and enforce them to ensure compliance to environmental protection
- Establish a waste reception facility

4.11 Changes in shipping technology and sizes

- Prepare equipment relevant to ship requirements
- Improve port draft, channel width and berth lengths to accommodate big ships
- Train port staff on changes
- Prepare for on-shore power supply to reduce the degree of ship emissions

MARKET SHARE ANALYSIS DARE ES SALLAM PORT VERSUS MOMBASA POR

	2007		2008		2009		2010	
	DAR	MSA	DAR	MSA	DAR	MSA	DAR	MSA
Rwanda	23.3	76.7	37.7	62.3	48.4	51.6	48.6	51.4
D.R. Congo	67.1	32.9	67	33	62.1	37.9	58.5	41.5
Burundi	72.4	27.6	76.3	23.7	93.1	6.9	98.3	1.7
Uganda	1.1	98.9	1.9	98.1	0.7	99.3	0.8	99.2

IT: 2007 - 2011

(% of M/tons)

2011	
DAR	MSA
61.3	38.7
65.3	34.7
99.6	0.4
1.6	98.4

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