6

Support to the Presidential Committee on Port Reform, Lagos Draft Final Report

Khalid Bichou and Jon Walden

July 2013

Original

BEIA 13 WINNER

British Expertise International Awards 2013:
Outstanding International Collaboration

Contract Reference No. 060 NPA CA

Crown Agents Reference No. 28825

Table of Contents

Page

It should be noted that the BSI Symbol and UKAS Accreditation mark signify that Crown Agents operate a documented Quality Management System registered with the British Standards Institution to the international quality standard BS EN ISO 9001:2008. The provision of consultancy services in revenue enhancement and expenditure and debt management including: customs, taxation and trade, human institutional and organisational development, engineering, procurement management advice and reform, health logistics and procurement services. The management of third party quality assurance and inspection services related to the supply of manufactured and processed products. International freight forwarding services utilising in house sub-contract warehousing. Verification of service as follows: Air Import – Clearance UK airport; Exports – Airport of departure; Sea Imports – Clearance UK port; Sea Exports – Port of loading.

FS3324

1. Introduction

Lagos ports constitute important gateways for Nigeria. It is estimated that between 80% and 90% of Nigeria's Import and export cargo transit via Lagos ports. Excessive costs and inefficiencies hinder trade and economic development. Concern about congestion, delays and inefficiencies in Lagos ports have been highlighted in several governmental and consulting reports, which pointed to low productivity, lengthy and cumbersome customs and administrative procedures, under-investment in both port infrastructure as well as landside and intermodal connections, poor organisation and operations of trucking and rail services, low human capital development in the freight and transport sector, and a lack of integration in both virtual and physical links with land-based transport and logistics systems.

Lagos ports is constituted of the Lagos Port Complex (LPC) located in Apapa and the Tin Can Island Port Complex (TCIP) located in Tin Can Island, the latter was formed by a merger of the port facilities at RoRo and Tin Can Island berths in 2006. The ports were built decades ago and while there is room for improvement, rising cargo traffic and the pressure on port capacity require new port developments in the medium and long-run. Among several port development plans, the Lekki port project, a deep-sea port and logistics zone located 65 Km east of Lagos mainland and due for completion in 2016, appears to be the most positioned to address Lagos capacity and congestion issues in the long-term. However, neither current (e.g. Lagos ports) nor planned (e.g. Lekki port) facilities can function properly without modern intermodal infrastructure and services supported by integrated and streamlined trade facilitation and procedural arrangements.

The Lagos ports sector are managed and regulated by the Nigerian Ports Authority (NPA). Since 2005, NPA performs the landlord function while cargo handling and terminal operations are performed by private terminal operators through lease and concession arrangements. NPA still retains the operations and management of marine services and has a regulatory role in the lease and concession agreements currently in place in Lagos ports. The Ministry of Transport and other governmental agencies, notably the Bureau of Public Enterprises (BPE), the Infrastructure Concession Regulatory Commission (ICRC), and the Presidential Committee on Port Reform, are responsible for or involved in policy, development and regulation of the port sector in Nigeria.

In May 2013, the Ports Support Project to analyse and improve port congestion in Lagos Ports began implementation under the PDF code 060 NPA CA. Working with Professor Monye, Special Advisor to the President on Port Reform, the project aims at unravelling the main causes of port congestion, providing solutions and recommendations and producing an action plan to reduce congestion and improve the performance of Lagos Ports.

Port congestion is usually synonymous with vessel and truck queues, cargo hold-up and delays, and traffic jams and disruptions in and around ports and terminal facilities. In the past, congestion at the Lagos ports has seen shipping lines imposing congestion charges on importers and exporters using the port and has also led to diversion of vessels to other neighbouring West African countries and resultant loss of revenue. Quite independently of costs shouldered by shipping lines, delays in ports impose costs on traders, businesses and supply chains through the increased cost of waiting time, delayed production / resale and inventory.

Congestion in ports may be the result or the symptom of one or several deficiencies:

1- Operationally, port congestion may take place at one or several port activities: in the waterside in the form of vessels queues and long turn-around times, in the terminal in the form of inefficient cargo handling and storage operations, and in the landside in terms of truck queues, road congestion, and delays in cargo receipt and delivery. Too often though, congestion in one area may be the cause of or the consequence to congestion in another area. It is therefore

important to try to understand and analyse the root causes of port congestion at the level of each port site or activity.

2- Institutionally and organisationally, port congestion may be the consequence of inadequate port institutional structures, under-investment in port infrastructure and services, port skills capacity gaps, and lack of proper monitoring and performance regulation. Here, the focus should be on the institutional and organisation structure of the port sector most notably on the performance targets and requirements placed upon port and terminal operators, for instance as part of the concession arrangements, and on the capacity of landlord and regulatory authorities to properly design and monitor those performance requirements.

3- Procedurally, port congestion may be the consequence of lengthy customs' and / or release procedures, cumbersome administrative arrangements, and a lack or absence of integration of the various processes (both physical and virtual) involved in trade transactions and cargo movements. Port congestion can also be caused by abnormal cargo delays due to erroneous documentation from the importer (often generated by the exporter), anomalies at the level of the destination inspection company, and the lack of capacity and professionalism of importers, exporters, freight forwarders, customs brokers and other intermediaries in the supply chain. Sometimes, port delays can be due to cargo owners' and forwarders' convenience such as lack of cash flow and willingness to defer the payment of import duties. Especially for small importers, there is usually a trade-off between paying duties, value-added tax and port fees and transport charges to move the cargo to an intermediate storage facility against leaving the cargo in the port and paying penalty charges for storing the container thereby delaying payment of the aforementioned fees, tax and duties. When the share of small importers is high, like in the case of Lagos ports, the strategy of using the port as a storage area is likely to be high (although this may be mitigated by the desire for importers to obtain value from their consignments which would usually have been paid for on shipment)

From a public policy perspective, disentangling reasons behind port congestion and cargo delays is crucial in order to identify and address the most salient problems and undertake appropriate measures to solving them. Traditionally, the appropriate answer entailed the adoption and implementation of institutional port reform through the introduction of private sector participation (PSP) in ports. Public authorities have also used other leverages to limit abnormal delays in ports and long dwell times for instance in terms of investing in additional port capacity and improving customs and other controlling agencies procedures. However, without a proper identification and analysis of the different causes and manifestations of port congestion, such solutions may have a limited impact on reducing re eliminating port congestion and delays.

With the above in mind, this project has focused on three main areas where the causes and symptoms of port congestion can be observed and reduced: (i) the efficiency of port and terminal operations, (ii) the design and implementation of performance requirements and regulation in port concessions, and (iii) the speed and effectiveness of customs and trade facilitation procedures. In addition, the project engages with major stakeholders at Lagos Ports, and relevant supply chain actors, and also conducts an assessment of Lagos ports against regional comparators, notably Cotonou and Tema Ports. This is to stimulate inputs and interactions with port stakeholders and users and provide a relevant comparative framework to validate the analysis and conclusions of this study as well as the suggestions and recommendations outlined thereof.

The remainder of the report is structured as follows: Section 2 briefly reports on the field visits undertaken by the consultants in particular the various meetings with the Lagos ports and logistics stakeholders and the dissemination workshop. In section 3, Lagos ports' efficiency by traffic and cargo type is analytically quantified both internally and vis-à-vis international benchmarks, with poor efficiency scores being recorded in container operations most notably at the landside interface. Section 4 examines Lagos port concessions particularly with regards to their activities, size of investments, duration, performance requirements, fees

and tariffs. The analysis shows that there is a need to audit and review the existing concession arrangements and properly plan and design future ones. Section 5 looks at trade facilitation issues and highlights some of the gaps and shortcomings in Nigeria's customs and trade facilitation procedures. Sections 6 and 7 provide a summary of recommendations along with an action plan for implementation and improvement. The report is the result of work carried out by Khalid Bichou (Port expert) and Jon Walden (Trade Facilitation expert) as part of the DFID project n^0 060-NPA-CA 'Support to the Presidential Committee on Port Reform: Lagos ports congestion'. Dr Bichou was in charge of sections 3 and 4 while Mr Walden was in charge of sections 5. The other sections were written jointly by the two experts with the support of Max Powles (project manager).

2. Field Visits

2.1 Stakeholder engagement in Lagos

On the 20th May, the two Crown Agents' consultants visited Lagos to identify and engage with stakeholders relevant to this project. This section will list the stakeholders and provide a brief summary of the key meetings that took place.

Stakeholders Engaged		
Organisation	**Name**	**Position**
CRFFN	Sir Mike Jukwe	Registrar / CEO
Apapa Bulk Terminal	Capt MJ Bashir	General Manager
Transport & Society Weekly	Tunde Ojudun	Editor
Bureau de Maritime Ltd	Nimbe Oviosu	Executive Chairman
Manufacturers Assn of Nigeria	Dr Austin Asimonye	Vice President
Nigerian Shippers Council	Dabne Shall Holma	Director
Assn of registered Freight Forwarders	Dr Frank Ukorff	President
Maritime Arbitrators Assn of Nigeria	Chief Gbola Akinola	President
Nigerian Ports Authority	Orunba Folarin	Chairman Ports Consultative
Seaguard	M C Ogadina	CEO
Lexzy Peters	Fwdr Lexzy Nwangwu	Managing Director
Nigerian Ports Authority	Joshua Asonga	Gen Manager, procurement

2.2 Cargo Defence Fund Workshop 21.06.13

This event focused on the issue of loss of / damage to cargoes whilst transiting Nigerian ports. The aim of attendance was principally to meet key stakeholders in the ports environment and, where appropriate, to arrange follow up meetings. This aim was met and the discussions provided some useful background to the wide range of issues affecting impacting upon port performance.
These included:

- Deliberate acts of port employees causing cargo distress
- Floods within terminal areas
- Use of the ports fast track system
- Sub-optimal cargo handling by stevedores
- Maritime cargo claims limits (3 days)
- Requirements for insurance to be evidenced at Form M stage
- High incidence of damage at Lagos terminals

- Application of Institute Cargo Clauses
- Clearing agents are not allowed to clause cargo receipts even when loss / damage is apparent
- Effect of standard maritime conditions – Hamburg Rules / migration to Rotterdam rules

2.3 Freight Forwarders Association 22.06.13

The freight forwarders were keen to voice their views on the reasons for delays in the ports. As key operational stakeholders, the briefing was expansive and the key points raised were:

- Licenced customs brokers are not trained. They generally do not understand the basics of classifications, valuations and rules of origin. HS code must appear on letters of credit, classifications should not be an issue.
- The core issue in the port is NCS. NCS licences brokers without due process. There are accredited training providers but no graduates yet. Institute of freight Forwarders has an on-going training programme.
- The migration to Destination Inspection by NCS will not be beneficial, there is a conflict of interest.
- NCS do not use transactional valuation method, they use 'static value'. They do not operate risk management processes.
- Green Lane clearance system does not work in Lagos Ports. However, NCS do follow Blue Lane fast track system which allows destination warehouse clearance. Yellow Lane, documentary checks, does not work. Light Red channel requires scanning whilst Deep Red requires physical inspection.
- There is only one scanner in Apapa Port. 200 x FCLs are scanned in one day, they should be able to achieve 500 x FCLs.
- Single Window initiative is perceived as a 'diversion'. "If NCS do not use Asycuda properly they will not use SW"
- Form Ms not valid for foreign exchange can exacerbate delays
- Significant delays can ensure after clearance by NCS. Largely due to corrupt practices. Cargoes sometimes have to wait at port exit gates for 2 days.

The interviewees were asked to expand on non-NCS related issues at Lagos Ports:

- Port access and egress road congestion
- Due to lack of space the terminal operators do not accept rules on use of customs examination bays.
- Port plant (cranes, straddle carriers etc) obsolete
- There are several ICDs serving Lagos Ports. Lilypond ICD is concessioned to APM Terminals but is not being used (even by Maersk Line) because of the extra cost in transferring containers from the Port. In general, the ICDs are dormant and the lines tend to use them for empty container storage.
- Railway system is not functioning in the ports, it was believed a system may be under construction.

2.4 Nigerian Ports Authority Consultative Council 22.05.13

Mr Folarin mentioned that various tools were available covering port productivity studies and cargo throughput analysis; these would be very helpful for this project. Mr Folarin undertook to provide these (JW to chase). Key point of discussion:

- The need to engage with NCS, agents and other institutions and stakeholders was established.
- Systems are the priority in any port reform for Lagos. Templates are not sufficient and a review of processes is essential. The processes should be related to pre-determined models which must be appropriate for the environment.

- Labour issues interfere with the established processes in the ports. The structure of concession agreements needs to be reviewed together with the requirements of those agreements. Consider a post concession audit of compliance against benchmarks.
- Ministry of Transport (Director of Maritime Services) Report of the Concessionary Review Committee 2010/11 should be studied (Mr Folarin has a copy). This is key to all the current issues on concessions.
- Consider current legislation – The Port Act and The Customs & Excise Management Act, also legislation governing other agencies such as NAFDAC, NSC and Standards. Integrated approach required at the port.
- The inception of Asycuda++ has been important and a Port Community ICT system is now needed to streamline activities.
- Mr Folarin said the project should concentrate on the performance of current reforms, for example, will the NCS Single Window ICT system be sufficient to make a difference. The linkage between NCS and port operations is key.

Mr Folarin agreed to provide a memorandum describing the issues in relation to Lagos Ports from his own perspective.

2.5 Apapa Bulk Terminal 23.05.13

Unfortunately, there was a long delay to achieve access to the Terminal for the meeting, this meant that the conversation with Capt Bashir was very brief. It became clear that Capt Bashir was very experienced and that the bulk terminal was probably very well managed albeit the challenges will be very different in relation to the container terminals. Capt Bashir agreed to participate in the planned stakeholders meeting.

2.6 CRFFN 24.05.13

The project team were invited to meet the senior CRFFN management team for a group discussion on freight forwarders perspectives on Port issues. In fact, the event was an internal CRFFN committee meeting and the slot allocated ended up being around five minutes. We were able to provide a quick brief on the project and seek CRFFN engagement for the second trip. This was agreed.

2.7 Workshop

The workshop was held at the DFID Regional Office, Ikeja.

Workshop Attendees		
Organization	**Name**	**Position**
P M & E	Chuks Iloegbunam	Communication Adviser
P M & E	Omar Yahaya Nura	
NMDLCA (Licensed brokers)	Lucky Amiwero	Director
NMDLCA	Block Uchi	
NMDLCA	Victor Ozigbo	
NMDLCA	Chiwons Ifdolo	
Nigeria Customs Service	ACG Oni Egboma	Manager NCS, Tin Can Island Port
CRFFN	Alban Iqwe	Director, Education & Research
CRFFN	Ifeanyi Osuagwu	Director
NPA	Adenike Sonaike	General Manager, Western Ports
NPA	Sylvester Egede	Assistant to Executive Director
Lagos Business School	Frank Ojadi	
Tin Can Island Terminal Ltd	M Isagba	Manager
Nigerian Shippers Council	Dabney Shall-Holma	Director, Shipping services
Nigerian Shippers Council	C A Ifeova	

Presentations were delivered as under:

(a) Concession arrangements in Lagos ports– Khalid Bichou

(b) Port Performance – Khalid Bichou

(c) Trade Facilitation – Jon Walden

Each presentation consisted of:

(a) Context

(b) Findings

(c) Recommendations

An open forum and discussion followed the formal presentations. Delegates made valid contributions and observations on the presentations and broadly appeared to validate the findings and recommendations. Comments made by delegates have been added to the appropriate recommendations below.

(*We record our thanks to DFID Office, Ikeja, for kindly accommodating the workshop)*

2.7.1 Points of Note from Attendees

Nigeria Shippers Council

- NSC are working with NCS and NPA to co-ordinate between the Port Community System and the National Single Window initiatives.
- During w/c 8 July NSC are meeting Central Bank of Nigeria to consider Form M system,
- Nigerian Railway Corporation are proactive and can provide much data about future plans and projects. There is rolling stock set aside for cargo transport including flat-tracks (for ISO containers)
- Nigeria has signed the Rotterdam Rules, ratification awaited as more signatories required. Nigeria led the sub-committee WP93.
- NSC are developing flow charts for all agencies activities – from vessel arrival to cargo delivery
- NSC providing much advocacy on Government to Business connectivity
- NSC work with shipping lines to keep them in line
- Trade in Nigeria is flat so now is a good time for change
- The concession agreements in the port are haphazard. There should be appropriate penalties and ambiguities should be removed from agreements.
- Inefficiencies on sea side spread to land side.

Tin Can Island Terminals

- Importers can be very slow removing containers from the terminal.
- They are not happy to use terminal as a warehouse, there is no incentive for TCIT to keep containers on the terminal for an extended period. They bear the cost of transfer of FCLs to ICDs.
- Terminal invests a great deal to meet international standards.

Licensed Customs Brokers Association

- Disagreed with the above comment and stated 3 days free time was insufficient due to NCS delays in clearance.

Nigeria Ports Authority

- They do use a BOT concession model and have a SPV in the form of a joint venture
- In relation to trucking, NPA have a vehicle appointment system and provide holding bays

CTFFN

- Regulatory framework is important. The quality of available haulage is an issue which needs to be addressed.
- Capacity building for forwarders is work in progress

- Dedicated freight routes would help
- ICDs are a good idea but must not be politicised.

NCS

- Trade facilitation is important, emphasis should be placed on compliant traders.
- Clearance within 3 days should be achievable in most cases.

Licensed Customs Brokers Association

- Responded to NCS that the ship's manifest may not even be in the system within 3 days. Also, it can take a further 3 days to receive the debit note
- ICDs are a problem, they are operated by terminal operators
- Commercial regulation of the port is required, as is regulation of shipping lines
- Compliance with the law can be a problem with some customs brokers

Office of the Special Adviser to the President

- Better regulatory control required.

2.8 GPHA 27.05.13 to 29.05.13

As part of this project, the ports expert (Khalid Bichou) has spent 3 days in Ghana on a field visit to Ghana Ports and Harbours Authority (GPHA). The purpose of the visit was to use the port of Tema as a comparator to Lagos ports and examine with GPHA's key staff several issues related to port congestion, port performance, concession arrangements, and strategic and corporate planning. Meetings held during this visit were as follows:

- 27.05.13 (morning): Meeting with Mr Jacob Adorkor, Director of the port of Tema
- 27.05.13 (morning): Meeting with Mr Mike Griffin, General Manger of the Golden Jubilee Terminal
- 27.05.13 (afternoon): Meeting with Mr Chris Amedor, General Manager Finance
- 28.05.13 (morning): Meeting with Mr Abraham Mensah, General Manager Administration
- 28.05.13 (afternoon): Meeting with Ms. Alice Tokoronou, Manager corporate planning
- 29.05.13 (morning): Brief meeting with Mr. Richard Anamoo, Director General GPHA
- 29.05.13 (afternoon): Guided visit to Tema seaport and ICD.

During the field visit, GPHA's management and staff were extremely helpful in providing the Consultant with port data and statistics as well as other information regarding congestion problems faced by Tema port and the solutions put forward to reduce it. Furthermore, the management of GPHA provided the Consultant with their corporate planning strategy for 2013-2017 which was used as a comparator strategic document and where relevant information was used for the purpose of benchmarking Lagos ports' performance. The main recommendations to arise from the Ghana comparator, that link to recommendations made later in the report, were as follows:

- The establishment of a truck appointment system (currently fully working for transit cargo –to neighbouring countries-, and as a pilot for gateway –import/export- cargo).
- The investment in a dedicated rail freight service from Tema to the Kumasi. Interestingly this is majority-funded by GPHA and not the railway company.
- The relatively higher efficiency scores achieved in Tema container ports compared with their Lagos counterparts largely due to continuous upgrading of superstructure (handling equipment).

- The experience of Ghana's ports in concessions is more recent than the one in Lagos, but seems more measured and rationale. as GPHA (the equivalent of NPA) is a shareholder of the main container terminal concessioned in Tema. This approach is much better than the one adopted in Lagos because (i) in the absence of a port regulator and (ii) without an appropriate and tested PPP framework, the GPHA solution allows GPHA to act as contract regulator while at the same time step in, as a shareholder, to correct any mishandlings and also it keeps a financial lifleline for the port authority to rebalance its books and invest in marine services and landside infrastructure while adjusting into its new landlord position.
- The use of congestion charging practices since 2011 (actually on my recommendations) has significantly reduced, though not eliminated, port congestion.

3. Port Performance

The primary aim of performance benchmarking studies is to measure and compare productive efficiency across time and/or between firms or Decision Making Units (DMUs). Broadly, efficiency can be defined as the ability of a DMU to produce a given output in a manner that is economic and efficient. In other words, it is defined as the relative ability of a DMU to successfully use and allocate its resources (*inputs*) so as to maximise its production (*outputs*).

In a multi-input and multi-output environment, performance measurement and benchmarking entails a further dimension because of the potential for input substitution. Understanding the relationship between inputs and outputs is important for both operators and regulators in order to assess productivity, competitiveness and quality of services. For ports, the benefits of performance benchmarking extend beyond operational and competitive objectives to include wider policy reform and global trade integration. This is particularly true for countries with relatively isolated geographical locations and long distances to trade markets. For Nigeria, the integration of the country's economy into global trade and supply chains depends critically on port efficiency. Given the role of Lagos ports in Nigeria's trade, the analysis of port efficiency is therefore crucial.

This section reports on the results of a study to measure and benchmark the efficiency of the Lagos ports' sector. Data Envelopment Analysis (DEA) is used. Appendix 2 summarises the DEA research methodology used in this section. Taking physical measures, this study measures and analyses the technical efficiency of Lagos ports both across time and against a group of comparable regional and international benchmarks. The analytical work reported in this study relates to the physical inputs that a port uses to produce a single or multiple outputs. It therefore ignores any indicator related to financial performance, due to the unavailability of cost and price data. Some researchers argue that only technical efficiency can be measured in port benchmarking studies given the discrepancy and dissimilarity of costing and pricing (e.g. tariff) schemes across world ports. However, when information about costs and prices is both available and accurate, it is possible to calculate allocative efficiency or the ability to use inputs/ outputs in optimal proportions given their respective prices and production technology[1].

Furthermore, we do not also incorporate information about port labour due to the unavailability of and difficulty in interpreting labour data. However, in the case of container ports, the configuration approach adopted in this study captures operational labour requirements, reducing the need to include labour parameters in the operational benchmarking model. For example, the use of a straddle carrier implies the use of a driver. Given the focus on operational efficiency, we therefore expect a port that produces a high level of output relative to its basic inputs to appear technically efficient.

3.1 Methodology and comparative benchmarks

We start with a dataset for the main commercial ports in Lagos and seven other regional and international ports of comparable traffic features. The data, compiled from primary (port visits, port and terminal websites and annual reports) and secondary (Containerisation International Yearbook) sources, relate to 15 indicators or variables over the 2008-2011 period. The 2012 data on Lagos and most other ports was either estimated or not available, so it was not included in the analysis. The choice of a relatively short period of four years is justified by data availability, as it should enable an accurate measurement of recent port efficiency.

[1]: Although we have no empirical evidence on financial or allocative efficiency, trade reports already suggest that Lagos ports are more expensive (in terms of price tariffs) than their international counterparts. Such evidence needs however further examination to understand the costs and profits involved in operating Lagos port facilities, as well as the costs to both the shipper and the carrier for using such facilities. The investigation into the sources and structure of the costs and prices of Lagos ports is beyond the scope of this study, although reference to the high tariffs levied in Lagos is highlighted throughout this report.

Two main port units in Lagos (bulk, container and general cargo) are compared with seven other regional and international comparator ports/terminals handling similar traffic (Tema, Cotonou, Abidjan, Lomé, Felixstowe, Rotterdam, and Hamburg). The input variables included in the analysis were chosen on the basis that they are the physical assets for which data is available. As such, they are appropriate for DEA analysis. Table 1 presents the output and input variables from the dataset. The analysis divides the data into two datasets, one for container and break bulk traffic and one for bulk traffic. In doing so, we end up with different sets of port units and variables, as shown in Table 2.

Variables	Descriptions
Inputs	
Vessel calls	Number of called vessels (per type) * Gross registered tonnage
Total area	Total port or terminal area (per traffic) in square meters
Quay length	Total port or terminal quay length per category of traffic (all berths) in meters
Berth indicator	Number of berths * Maximum draft in meters
Quay crane index	For container terminals [(Gauge + Outreach + Lift Height) * Capacity * Cranes]/100 For bulk and break bulk terminals (Capacity * Number of cranes)/100
Straddle carrier	Number of straddle carriers (for container terminals only)
Yard cranes	Number of RTG and RMG cranes (for container terminals only)
Crane stackers	Number of reach stackers, front-end loaders, fork lift trucks, etc
Vehicles	Number of trucks and vehicles
Trailers and chassis	Number of trailers and chassis
Outputs	
Total throughput	Total throughput in tons or TEUs
Inbound	Inbound throughput in tons or TEUs
Outbound	Outbound throughput in tons or TEUs
Empty	Empty container throughput in TEUs
Full	Full container throughput in TEUs

Table 1: Variables used in the efficiency analysis

Lagos ports and comparator benchmarks: Lagos, Tema (Ghana), Cotonou (Benin), Abidjan (Cote d'Ivoire) Lomé (Togo), Felixstowe (UK), Hamburg (Germany), Rotterdam (Netherlands)		
Dataset	**Inputs**	**Outputs**
Container	Vessel calls, total container yard, total container quay length, berth indicator, quay crane index, straddle carriers, yard cranes (RTGs/RMGs), reach-stackers and other cranes, tractors and other vehicles.	Total container throughput (TEUs), outbound (TEUs), inbound (TEUs), empty (TEUs), full (TEUs)
Bulk	Vessel calls, total bulk area, total bulk quay length, bulk berth indicator	Total bulk throughput (tons), outbound (tons), inbound (tons)
Passenger	Total passenger area, Length of passenger quay	Pax and vehicle throughputs

Table 2: Container and bulk/break-bulk dataset[2]

The results of the efficiency analysis are presented in relation to container and break bulk operations and to bulk operations.

3.2 Container operations

Model 1 comprises a sample of 8 container ports and terminals over 4 years (32 DMUs in total), of which Lagos container port facilities in Apapa and Tin Can Island are aggregated and compared with 4 regional container ports (Tema, Cotonou, Lomé and Abidjan) and 3 international port benchmarks (Felixstowe, Hamburg, Rotterdam).

Decision-making	Efficiency	RTS	Benchmarks*
Abidjan 2008	0.68000	Constant	0.844
Abidjan 2009	0.66195	Decreasing	0.974
Abidjan 2010	0.68000	Constant	0.823
Abidjan 2011	0.63744	Decreasing	0.936
Cotonou 2008	0.68000	Constant	0.760
Cotonou 2009	0.63665	Decreasing	0.688
Cotonou 2010	0.59473	Decreasing	0.688
Cotonou 2011	0.54296	Decreasing	0.628
Lagos 2008	0.54129	Decreasing	0.695
Lagos 2009	0.50702	Decreasing	0.507
Lagos 2010	0.48082	Decreasing	0.570
Lagos 2011	0.41559	Decreasing	0.555
Lomé 2008	0.58852	Constant	0.794
Lomé 2009	0.59979	Constant	0.500
Lomé 2010	0.70000	Increasing	0.794
Lomé 2011	0.70000	Constant	0.794
Tema 2008	0.68	Decreasing	0.84
Tema 2009	0.69	Increasing	0.97
Tema 2010	0.68	Constant	0.823
Tema 2011	0.67	Decreasing	0.936

Table 3: Efficiency estimates and benchmarks for Lagos container port operations
*Attainable efficiency levels for each DMU

Table 3 above shows the efficiency scores for Lagos container ports against those of other regional ports from 2008 till 2011. From the figures in Table 3, several inferences can be made:

- No container port in the region is achieving an efficiency score above 0.7 (70 percent), which shows that port productivity in the region is still below international best practice. Lomé scores the highest efficiency with a remarkable leap in 2010 and 2011 compared to 2009 and 2008 scores. This is most

[2] The input variables included in the analysis were chosen as the physical assets for which data is available. The choice of port throughput as the output measure was also determined by data availability, although it is recognised that, in line with the multiple-output nature of ports, two distinct outputs are normally considered: ship output (waiting time, turnaround time, crane efficiency, etc) and cargo output (dwell time, throughput, etc).

probably the results of new investment in container port capacity with the opening of the new container terminal. Lagos ports on the other hand depict the lowest efficiency than its regional counterparts.

- No port in the region shows a consistently increasing efficiency over time although Lomé was almost near to achieving this. Abidjan and Tema efficiency scores mostly fluctuate over time but are within a 3% to 5% range with Tema being the most consistent. Lagos and Cotonou both show declining efficiency and returns to scale over time, indicating there is shortage of capacity. However, with the recently added terminal capacity, Cotonou may have reversed (in 2012) or be in the process of reversing this trend very shortly. This leaves Lagos ports in a limbo situation as it cannot increase its capacity further.

- Given the constraints on capacity planning, much, if not all, of the improvement in Lagos ports should focus on capacity management; i.e. optimising port operations without improving terminal infrastructure capacity. Under capacity management (as opposed to capacity planning), productivity could be increased by undertaking a number of measures including modernising port superstructure, use of automated systems, streamlining terminal processes and procedures, and reduction of ship's service time and container dwell time.

While the results in table 3 and the interpretation that follows provide a good and objective analysis of the relative efficiency of Lagos ports vis-à-vis its peers, it does not inform in details about the sources of inefficiency. In particular, port congestion may be caused by various anomalies and the high-level DEA model presented in Table 3 does not point out which anomaly or combination of anomalies are behind port congestion and inefficiency.

As outlined in the introduction, port congestion may be the results of one or a combination of various anomalies most notably the followings: (i) inefficient port operations, (ii) the lack or the absence of performance requirements and regulations in port concessions, and (iii) lengthy and cumbersome customs and administrative procedures. In this section, we will examine port congestion stemming from inefficient port operations, while the last two causes of port congestion will be covered in Sections 2 and 3, respectively.

Operationally, port congestion may take place at one or several port activities: in the waterside in the form of vessels queues and long turn-around times, in the terminal in the form of inefficient cargo handling and storage operations, and in the landside in terms of truck queues, road congestion, and delays in cargo receipt and delivery. In order to analyse the sources of operational port congestion, we run additional DEA models that either incorporate or exclude a number variables related to each port site or activity.

Congestion at the waterside:

For the waterside (responsibility of NPA), we include in the analysis the variables number of ships' calls, size of ships, waiting time in ports and vessel turn-around time.

The results of the 1st model are presented in Table 4 below. Note the time scale of the analysis under this model which now has been extended back to 2005 to account for productivity scores before and after the introduction of terminal concessions and limitation of the scope of NPA operational intervention into marine services. The results point out that Lagos ports, despite not topping the performance table, are achieving above average efficiency. More noticeably, Lagos ports have achieved a leap in water-side efficiency from 2007 onwards with efficiency scores increasing by 110% from 2005 to 2007. Note however the decreasing trend in efficiency in 2011 suggesting that congestion in the waterside may be back in Lagos ports.

Since NPA has always been the sole responsible for marine services and has remained so after the terminal concessions to private operators in 2005 and 2006, much of the leap in productive efficiency of marine

services would be attributable to improvements in terminal productivity. As ships are handled quickly and more efficiently at the quay (terminal side), less and less ships would queue for berthing space.

Prior to 2005, vessels in Lagos ports had to queue for about 45 days to find berthing space. This has led shipping lines to impose congestion surcharges which amounted to over $100 million per annum. This was to stimulate improvements as well as to recover the costs of delays shouldered by shipping lines arising from extended stays in port, increased fuel bills incurred trying to maintain sailing schedules, and schedule disruptions. The problem of congestion at Lagos ports were partially solved after the terminals were concessioned. Private terminal operators promptly instituted measures that reduced vessel queues and port congestion and the surcharges were later removed as service improved.

Congestion in the terminal (quay and yard):

For the landside activity (responsibility of terminal operators), we exclude the above variables but include the variables quay crane mover per hour, terminal size, cargo dwell time (in the yard), free-yard storage, and gate cut-off time.

In order to examine the relationship between yard storage policy and terminal efficiency, we run a further model as a replica of the initial DEA model, with the difference that the variable 'number of free storage days in the yard' features now as an input variable. Since the yard storage policy is believed to be an explanatory factor, we want to test whether the inclusion (or exclusion) of this variable is likely to affect efficiency scores of Lagos ports. A similar analysis is undertaken to investigate the impact of gate procedures by comparing DEA results with and without the input variable 'gate cut-off time'.

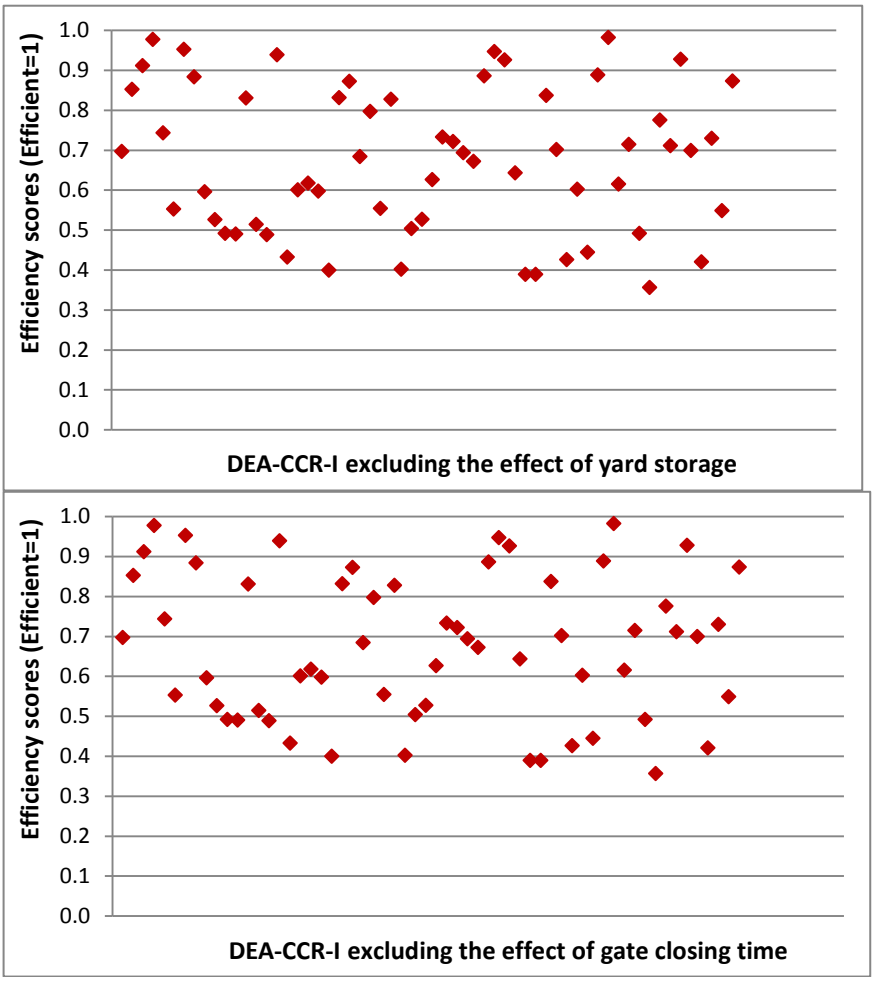


Figure 1: Comparison of average terminal efficiency with/without yard and gate inputs

The comparative results of this analysis are depicted in Figure 1 which shows similar trend pattern can be detected in both cases, but there is a minor change in efficiency scores. For the yard procedure, the inclusion of the input variable 'free storage time in the yard' leads to a generalised increase of technical efficiency scores by 86% in container terminal productivity in Lagos. For the gate policy, there has been a generalised increase of efficiency scores by 25% after including the input variable 'gate cut-off time'. This means that on average the use of storage yard and gate procedures as additional input resources seems to boost significantly port operational efficiency. Furthermore, when compared with regional counterparts, Lagos container terminal efficiency only slightly deviates (downwards) to that of other regional ports which suggests private terminal operators in the region all achieve comparable performance levels.

Note however that the proportionally high impact of yard storage policies suggests that there may be a problem in the way free yard storage is instituted and implemented in Lagos ports. While the relatively short free storage period of only 3 days which is currently in place should act as a disincentive for importers and freight forwarders to keep cargo in the port, the charges that are currently implemented following the expiry of the free period are yet too low to deter cargo interests from using the port as a storage facility. To this end, we suggest the use of congestion charging in yard storage policies and this can act as a real deterrent against the use of terminal space as a storage facility (see sections below for further discussion). Another issue that should be addressed as far as yard storage policy and terminal capacity is concerned relates to cash flow and payment delays. Especially for small importers, there is usually a trade-off between paying duties, value-added tax and port fees and transport charges to move the cargo to an intermediate storage facility against leaving the cargo in the port and paying penalty charges for storing the container thereby delaying payment of the aforementioned fees, tax and duties. When the share of small importers is high, like in the case of Lagos ports, the strategy of using the port as a storage area is likely to be high. Solutions to the latter problem lie in trade finance and facilitation procedures which will be discussed in detail in Section 4 of this Report.

Congestion at the landside (gate and intermodal systems):

For the landside (joint responsibility of NPA, terminal operators, trucking companies, Ministry of transport, Lagos governorate, and other governmental stakeholders), we exclude the above variables but include the variables, quality of intermodal connections, gate-cut off time, and average truck turn-around journey.

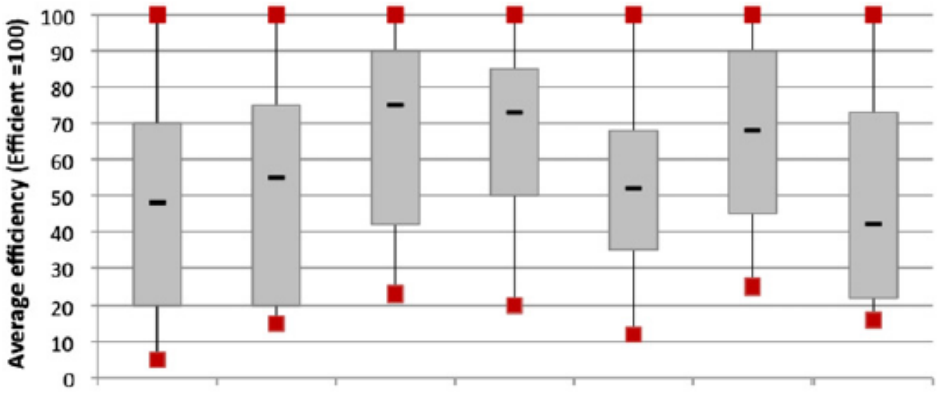


Figure 2: Comparison of average terminal efficiency with/without yard and gate inputs

Using a DEA model replicating the above variables, the analysis of landside efficiency shows a steep decline of Lagos port performance to levels ranging from20% to 45%, the lowest in the region. The box-plot diagram shown in Figure 2 above provides further information on the dispersion, skewness and potential outliers of efficiency scores yielded by ports in the region. The results confirm our assumption that much of the inefficiencies and port congestion observed in Lagos ports over the past years are mostly due to inadequate

hinterland infrastructure, poor intermodal connections, inappropriate rail and trucking services, and a number of other deficiencies related to the organisation of freight forwarding and agency services. Thus efforts to reduce congestion at Lagos ports should focus on the landside aspect which has been neglected for a long time. Some of the quick fit solutions are listed below, but will be discussed in detail in Section 5 of this Report:

3.3 Bulk operations

The model developed to analyse bulk operations is based on a sample of 8 ports/terminals, 48 decision-making units in total. When compared with their regional counterparts, Lagos ports bulk facilities perform better (above average) in terms of operational efficiency, particularly in the dry bulk category, and the general trend of increasing efficiency should be noted. Note that in this model, we have replace Felixstowe (UK) which is dominated by container and unitised traffic by Richard Bay (Nigeria) which is a major bulk port in the continent and globally, all other ports in the sample have remained.

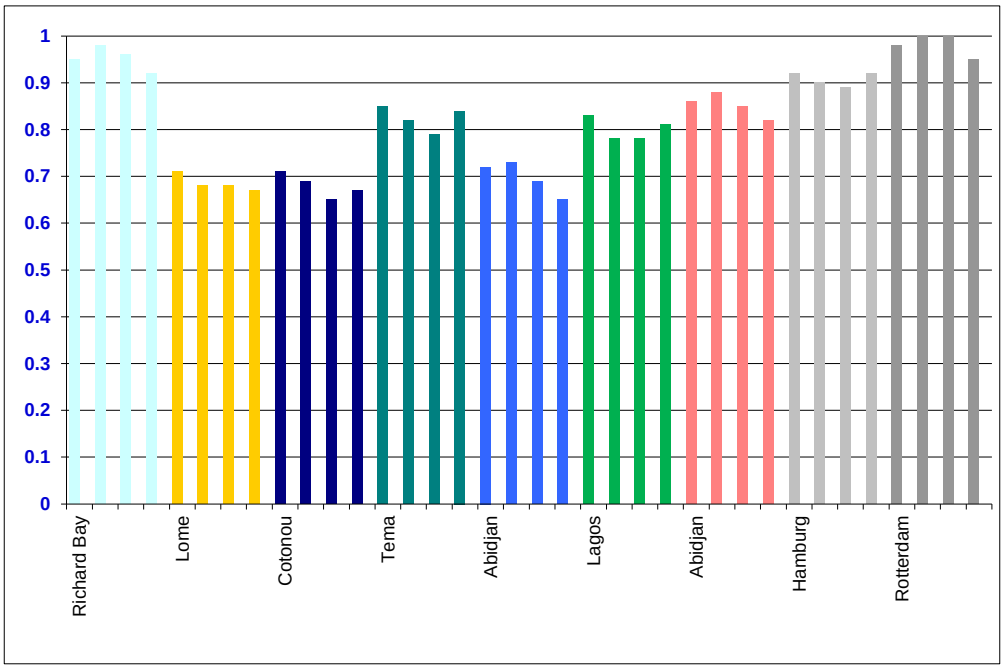


Figure 4: Efficiency of Lagos bulk ports over the period 2008-2011

Figure above shows Abidjan (again) to be the most efficient port in the sample, followed by Tema. Just below the 80% bar, a second-tier of ports topped by Lagos. The last tier (< 70%) comprises the less performing ports of Lomé and Cotonou. Several factors may explain this ranking ranging from uncontrollable factors such as the type of bulk cargo and ships both ports handle to controllable factors such as poor technical efficiency and/ or low level of automation.

In the case of Lagos, the above average performance in bulk operations is mostly due to the vertical integration of shippers importing/operating bulk commodities, as oppose to container operations which are very fragmented in Nigeria.

3.4 Recommendations

Recommendation 1: Establish port performance and price review (yardstick benchmarking)

Yard stick benchmarking and performance review is one of the main tasks of a port regulator, the establishment of which is recommended in Section 2 of this Report. We recommend the establishment of a performance benchmarking and price review mechanism to address the shortcomings outlined in both sections on port performance and concession arrangements:

- *Performance benchmarking using established models similar to the one used in this report will allow both regulators and policy makers to compare the efficiency of Lagos port operations against regional and international benchmarks.*
- *Performance benchmarks shall be used as targets for terminal operators in concession agreements, thus diving port operations towards efficiency targets.*
- *In a monopolistic situation, such as that of NPA operating marine services, performance benchmarks should be used as part of a contract programme or other similar arrangements between NPA and the Nigerian Government where NPA would be required to achieve benchmarking targets. Such an approach should also guide the Government's future port policy in deciding whether or not to introduce competition in marine service operations.*
- *Performance benchmarks are also used for price regulation for both terminal services (under concessions) and nautical services (under NPA's monopoly). For activities under concession, performance (yardstick) benchmarking is used to establish price caps and/or efficient firms according to which port tariffs are decided. In case of non concessioned activities, performance benchmarks are used to establish comparables, including marginal costs and prices, against which port dues and conservancy charges should be set.*

Recommendation 2: Disaggregate terminal congestion from port congestion

As discussed above, port congestion can stem from at least three sources of congestions: congestion at the waterside (marine services), congestion in the terminal (cargo handling operations), and congestion at the landside (gate and intermodal operations). It is important to disaggregate all three sources of congestion, especially terminal congestion which can, to a large extent, be solely attributable to the performance of terminal operators, and thus can be used as a good indicator for operational benchmarking, contractual (e.g. concession) arrangements, and even policy options.

Recommendation 3: Move freight stations outside terminal (may be still in the port)

Container freight stations (CFS) are areas where cargo consolidation and break bulk take place. CFS are important locations especially for LCL (less then container load) cargo with more than one consignment. As opposed to FCL (full container load), LCL cargo must be broken down (at import) or consolidated (at export) and those operations and others usually take place in the CFS. Note that the CFS is an operational terminology and may mean or differ from ICDs and dry ports because the latter denote a customs bonded area regardless of the types of operations taking place.

If the CFS is located outside the terminal (may be still in the port), then from the perspective of the terminal operators all containers passing through the terminal (export, import, transit or transhipment) are all considered as FCLs which significantly reduces handling and operational redundancies. The opposite would obviously occur, i.e. leading to congestion and delays, if the CFS is included in the terminal because all LCL cargo will need to be consolidated or deconsolidated. The rational approach is therefore to move the CFS outside the terminal and preferably outside the port, otherwise congestion in the terminal would simply move

to the port.

Modern ports move the CFS outside the terminal and if possible outside the port and the same should apply in Lagos ports.

Recommendation 4: Compile and publish detailed KPIs for port performance

In most ports, detailed key performance indicators are measured and compiled regularly (daily, weekly and monthly) and serve as a tool for detecting inefficiencies and improving port performance. In Lagos ports, such KPIs were neither made available to us nor are they published in official port websites or in its regular reports.

A case in point is ship turn-around time which denotes the duration of the vessel's stay in port and is calculated from the time of arrival to the time of departure. Commonly expressed in hours, the port authority would normally compile statistics that would provide monthly and annually average turn-round times. The average turn-round time per ship is determined by dividing the total hours by the total number of ships calling at the port. In its basic form, ship turn-round time does not mean much, as the length of stay of a vessel is influenced by (a) the volume of cargo, (b) the facilities made available and (c) the composition of the cargo itself. Thus it becomes necessary for the port to break the basic ship turn-round time down for tankers, bulk carriers, container vessels and general cargo vessels, and even sub-dividing these into domestic trade, regional trade and deep sea trade.

In compiling data that would enable the port to determine ship turn-round time or the tonnage handled per ship day (or ship hour), a port would normally split total time in port into time at berth and time off the berth and within each, the opportunity would be taken to record for each service activity the amount of delay (idle time) as well as the reasons for the delay (e.g., waiting for cargo, opening/closing hatches, waiting for gears, rain, waiting for berth, etc). In particular, the ratio between the waiting time for berth and the time spent at berth, known as the waiting rate, is a significant indicator of possible congestion status.

Recommendation 5: Develop dedicated freight routes and services (new or existing)

Dedicated freight routes are becoming the preferred solution for many port-bound cargoes. This offer targeted cargo capacity and provides reliable and dedicated routes and services for cargo to flow between the port and its hinterland origins and destinations. Establishing dedicated freight routes and/or services include one or a combination of the following solutions:

- *On existing infrastructure, dedicated routes can take the form of dedicated slots in rail, road, and or other modal or intermodal services. Under this system, operators, e.g. rail, would provide and guaranteed and dedicated freight service with a minimum cargo (e.g.) capacity to transfer cargo to-from the port. Cargo owners, terminal and/or logistics operators, can bid for a particular service (e.g. under slot auctioning) or pay a higher charge depending on the tariffs set by the infrastructure operator.*
- *On new infrastructure, dedicated freight routes can be part of a new public or private scheme. For instance, many ports around the world (from Rotterdam to Tema) have started developing, or have already developed, dedicated freight routes linking the seaport to the dry port or ICD thus reducing congestion and improving reliability. Elsewhere, new or renegotiated concession arrangements are structured in a way that private operators not only invest in port infrastructure and services, but also in hinterland links from-to the port.*

There is currently a lack of intermodal connectivity (eg rail link to Kano ICD)

There are plans for investment in port / rail / road intermodal connectivity. This would be of significant benefit in relation to congestion reduction at the ports. For example, on the LAKAJI corridor, a bonded rail link from the terminal to Kano ICD (clearance in Kano) would enable containers to be transported by direct block

train very soon after arrival. Not only would this take pressure off the terminals it would also reduce the severe congestion currently evident in the road infrastructure around the Port access and egress points in the Lagos area. Further benefits would be enhanced security of cargoes, quicker transit and lower cost.

There are several on-going activities in relation to improving overall connectivity. For example, rail link direct to APM Terminal and the re-establishment of the Kano rail operation. Intermodal connectivity is crucial to relieve congestion in the Lagos area. We recommend regular progressing so that these intentions become medium rather than long term realities.

Recommendation 6: Introduce congestion charging in cargo storage and as a port pricing mechanism

The assessment of a port's performance from the point of view of the exporter/importer is quite basic in that there is only one indicator of interest, the dwell time of cargo in port measured in terms of the number of days that a container or a ton of cargo remains in port. A high dwell time is generally an indication that all is not well with the port. It does not, however, identify areas where improvements may be sought since, unlike ship time in port, it does not have a breakdown according to the various procedures that have to be gone through before cargo can be shipped or delivered (e.g., customs clearance, waiting for instructions, waiting for ship, waiting for transport, etc.).

In Laos ports, the current free yard storage policy is 3 days which is quite short by regional and international standards (Tema for instance has a free yard storage policy of 7 days). However, even with the relatively short free storage period, container dwell time in Lagos is quite high even compared to regional ports with generous free yard storage policy. This may be due to the long and cumbersome customs and release procedures, but can also imply a strategy by importers to use the port as a storage area even after the 3-day free period because yard storage fees charged are far less than storage and transport fees elsewhere (e.g. in private warehouses). Instead of flat or tapering fees, congestion charging is an effective solution for discouraging importers from using the port as a storage area. Congestion pricing consists of levying a congestion surcharge to users in order to reduce port congestion and in the case of terminal operations it means charging higher storage fees to reduce the demand for yard storage at a level equivalent to port supply (or optimum port capacity) where no congestion occurs.

Congestion Charging is a politically sensitive policy but in the absence of additional capacity, it can be the best tool for dealing with ports operating at capacity. Caution must be taken with this recommendation though in obtaining sufficient justification and a sensible approach.

Recommendation 7: Fully Implement appointment system for trucking services

An effective system to reduce port congestion at the landside is to establish a port appointment system for trucking services. Used widely (from Long Beach to Aqaba), such systems entail both physical and virtual solutions to organise trucking services. Physically, this means the establishment of marshalling yards or or truck terminals away from the port, where trucks (empty or full) will be stationed waiting for appointment instructions (a limited time window) where they are allowed to call the port. Typically, the appointment system should include an N-Flow structure (a truck control system permit, time window requirements, capacity management, dispatch based loading/ offloading orders, synchronization among stakeholders, consolidation of Information and smart reporting). Virtually, terminal operators, the port authority, customs and other relevant agencies can establish (and decide on which) procedures can be performed in each truck terminal or marshalling yard. The establishment of a truck appointment system requires a high degree of coordination between truck terminals and the port, for instance in establishing gate-cut off times, late pick-up penalties, yard storage policies, release procedures, etc. It was noted at the workshop that this scheme is underway but its full implementation is very important to improving the Ports.

4. Concession Arrangements

Port infrastructure and associated activities can be categorised into maritime access infrastructure, port infrastructure and superstructure, and landside access infrastructure. Maritime and land access entails long-lived, largely sunk assets with costs that cannot be easily assigned to specific port users. Thus these assets are not likely to be attractive to private investors and are typically owned by governments or possibly a consortium of port operators. Although a lot of non-access port infrastructure and superstructure are also long-lived assets, their costs can be more easily assigned to port users. Accordingly, there is much greater scope for private participation and investment in these assets. It is in this area where private sector participation (PSP) in ports has been more prominent and has usually taken place within the context of private-public partnerships (PPP) and concession arrangements.

Concessions are usually used in two cases: to regulate a market characterized by limited competition and/ or to attract private investment in order to partly substitute public funds. This dual objective seems to have been behind concession agreements in Lagos (and Nigeria) ports; on the one hand to prevent NPA's monopoly on port operations and promote competition, on the other hand to attract private sector funding of port infrastructure and services which can then relieve port public funds to be used elsewhere.

4.1 Scope and Purpose

This section shows the preliminary findings from evaluating the concession arrangements received by Crown Agent's consultants in Lagos ports.

The concession documents are outlined below. Other concession agreements were also submitted by the beneficiary but they relate to ports and terminals outside Lagos ports, and thus they are not part of this analysis.

1. Lease agreement of 03 June 2005 for Break Bulk Terminal D at Apapa port between NPA (Lessor), BPE (confirming party), and ENL Consortium Limited (Lessee).
2. Lease agreement of 24 October 2005 for Apapa Port Terminal A between NPA (Lessor), BPE (confirming party), and Apapa Bulk Terminal Limited (Lessee).
3. Lease agreement of 24 October 2005 for Apapa Port Terminal B between NPA (Lessor), BPE (confirming party), and Apapa Bulk Terminal Limited (Lessee).
4. Lease agreement of 19 September 2005 for Apapa Container Terminal between NPA (Lessor), BPE (confirming party), and APM Terminals Apapa Limited (Lessee).
5. Lease agreement of 18 May 2006 for Tin Can Island Terminal B between NPA (Lessor), BPE (confirming party), and Tin Can Island Container Terminal Limited (Lessee).
6. Lease agreement of 11 May 2006 for Tin Can Island Terminal C between NPA (Lessor), BPE (confirming party), and Port and Cargo Handling Services Limited (Lessee).

The purpose of this draft is to set out the key characteristics of public private partnerships (PPPs) arrangements in the ports sector, so that they can be compared with those of concession and PPP arrangements in Lagos Ports. In an attempt to get away from case-by-case descriptions, it has been based on a cross-sectional analysis by the Consultant of the above agreements against 400 terminal concessions drawn from the PIIAF database of the World Bank. This attempt to discover what constitutes the "norm" in port PPPs and concessions, and whether the Lagos port concessions under study are exceptions to the norm or whether they have themselves any underlying features in common.

In this report, the Consultant tries to avoid traditional short-hand terms for describing PPPs like BOT (Build-Operate-Transfer), BOO (Build-Operate-Own), DBFM (Design-Build-Finance-Maintain) etc., as there are many variants within these arrangements, and the terminology is interpreted differently in different parts of the world. Instead it tries to develop an alternative approach based on key clauses in PPP agreements such as those governing obligatory/permitted activities, concession duration, exclusivity, investment, regulation etc which allow PPP arrangements to be compared at a finer level of detail.

4.2 PPP Models in the Ports Sector

Most PPP models in the ports sector sit within a landlord port structure in which a public sector port authority (often autonomous) enters into PPP contracts for a series of individual terminals. The operators of the terminals are usually, but not always, different, and the PPP model used may differ from one terminal to the next. The role of the port authority is to provide and manage common facilities like the breakwater and entrance channel, utilities and road and rail access; to regulate the individual PPPs; and to plan and implement the expansion and development of the port. The most common PPP models for individual business units are:

• The management/investment model for existing public assets

The private operator manages publicly owned assets and makes additional investments in them, in exchange for being given the right to use them for a specified period of time. Ownership of the public assets remains with the public sector throughout this period; privately-funded fixed assets are usually (but not always) taken into public ownership immediately after construction, whilst privately-funded mobile assets such as mechanical equipment usually (but not always) remain in private ownership.

This is reflected in the 'transfer-back' arrangements at the end of the contract period, when the right to use the assets (now a mixture of public + privately-provided) reverts to the public sector, which may then re-assign them to another operator. Various arrangements exist for compensating the private operator for the residual value of any investments made during its period of tenure. For fixed assets "no compensation" transfers are probably still the most common. Mobile assets paid for by the private operator, in contrast, can usually be withdrawn or sold-on to the public sector, reflecting assumptions about ownership which are either explicit or implicit in the contract.

• The development rights model for new private assets (BOT)

Here the private investor buys the right to build new port assets and have exclusive use of them for a fixed period of time before transferring them over the public sector. This is a model which has been increasing in popularity in the ports sector as the stock of public assets suitable for private management has dwindled. However it raises the question of why private investors should have to give back their assets to the public sector, often free of charge.

One of the surprising things about the ownership structure of the ports industry is how few freehold private ports there are. Those are freehold captive user terminals, usually part of vertically integrated mining, agricultural or forestry enterprises, but common user terminals and multipurpose ports are usually both competitive free market business environments with long coastlines and lots of ports.

There seem to be four main reasons why the BOT (Build-Operate-Transfer) concession model prevails over the private freehold model:

- The Latin legal tradition that the seabed up to the high water mark belongs to the State, and cannot be transferred irrevocably to any private enterprise. This has been a very important concept in port development in countries in Latin America, North Africa and the Mediterranean.

- The high costs of shared infrastructure such as breakwaters and dredged channels, which need to be partially recovered from the shore-based terminals which benefit from them, as well as from ships. BOT contracts give public port authorities a continuing claim on terminal revenues/ assets which would not be possible if freehold terminal development was allowed.

- The limited number of sites which are suitable for port development in some countries. Here the State may seek to retain a permanent stake in their development for strategic or monopoly profit reasons, without putting up any of the necessary investment. Road and rail schemes, in contrast, may have fewer locational restrictions.

- Safeguarding of the value of State-owned ports, in the face of competition from lower cost private freehold sites. In this context, BOT schemes can be used to ensure that ports compete under conditions established by governments rather than markets. This type of PPP model is associated with green-field site developments in many different countries, but has been particularly important in Western Europe where there is a long-established landlord port tradition.

• The public-private joint venture model

In this model, the public sector has an influential or controlling stake in the Special Project (Purpose) Vehicle (SPV) which is set up to hold either a management-investment contract or a development rights contract for new port facilities. These contracts otherwise operate broadly as described above, although the existence of a large public sector stake in the SPV has a significant effect on the detailed provisions of the contract, as described later.

4.3 Private Sector Participation in Nigerian Ports

From the analysis of the port concession agreements submitted to us for both for Lagos ports and elsewhere, it is clear that none of the above PPP models currently apply (see annex 3), meaning that a true PPP design and implementation in the port sector in Nigeria does not exist at present. Instead, all the agreements related to Lagos ports have the title of lease agreements which appear to be regulated under procurement laws rather than PPP laws.

A lease is a rental contract in which the port leases an asset (infrastructure, superstructure, or both), or the right to use it, for an agreed period of time in return for a bulk payment or a series of instalments. There are two main types of lease arrangements: lease contracts and leasehold agreements. Lease contracts, which often have a built-in renewal clause, apply when an operator enters into a long-term lease on the port land and becomes also responsible for superstructure and equipment. Leasehold agreements are simple rental agreements with only land or warehouse facilities being leased.

4.4 Characteristics of PSP in the Ports Sector in Lagos

While the lease agreements for Lagos ports generally fall under the above framework, there are deviations on several aspects. The main characteristics of private sector participation (PSP) in the ports sector can be defined in relation to eight policy issues: activities, investment, contract duration, exclusivity, performance requirements, labour, tariffs and concession fees. These are discussed in the sections which follow, and in Appendix 3 of this report, both of which provide a background of common global practices and compare them with Lagos ports agreements.

4.4.1 Activities

Most port concessions impose strict limits on what private operators are allowed to do, usually in terms of the types of cargo they are allowed to handle. Intended to encourage efficiency through specialisation, this also protects the interests of the other private operators, and maximises the value which the port authority can extract through the creation of local monopolies.

Two other common limitations on private activities in ports are the separation of cargo handling from marine services, and the design of PSP contractual arrangements on a terminal rather than a whole port basis. Cargo handling activities have traditionally been separated from marine services (pilotage and towage). The latter enjoy significant economies of scale, and ports which can support several terminal operators are often unable to support more than one marine service provider of each type.

In Lagos ports, there are deviations on the above in that there is no clear indication on what basis port activities have been disaggregated for the purpose of lease contracts:

- The submitted lease agreements have been signed in the period of 2005-2006 which suggests that they are generally associated with the port reform programme involving the institutional reform and restructuring of NPA and the trend towards a landlord port model. However, arrangements associated with such reforms generally fall under the 1st PPP model 'management/investment model for existing public assets' outlined above (ref privatisation programmes which have taken place since the late 1980s in southern Europe, South America, Africa and South Asia) rather than lease arrangements. As such a true and comprehensive port reform is yet to be completed in Nigeria. Further discussion on this issue is provided elsewhere in this report (see annex 3).

- There appears that the separation of port activities does follow neither the cargo handling specialisation principle nor the objective of economies of scale outlined above. This is the case of Apapa bulk terminals A and B and Tin Can Island terminals C and D

- The same issue applies to the segregation between marine services and cargo handling operations because it appears that the former is still under the management of NPA. There may be valid reasons to keep such services under the ownership and management of the landlord authority (ensuring safety and security compliance, eliminating anti-competitive behaviour, etc.) but those can still be safeguarded under an appropriate PPP and concession framework. In this respect, we point out that there are no performance targets for NPA to achieve in operating marine services (over which it enjoys a monopoly) while as shown in the previous section the performance of the waterside system is still below international standards. It would be relevant to have a declared policy whereby a possible injection of competition in marine services can take place if performance standards are deemed (and continue to operate) below comparator benchmarks.

4.4.2 Investment

The private investment requirements associated with PPP and concessions contracts may be either:

- Obligatory - clearly specified, with an agreed time schedule.

- Event-triggered – usually a requirement to increase capacity once berth utilisation reaches a certain level, with the form of the investment either pre-specified in the PPP or left to the operator's discretion.

- Indicative – a broad programme agreed in advance but subject to change as the PPP progresses.
- Discretionary – left to the private operator on the understanding that investment will take place when necessary. Sometimes the PPP includes an estimate of expected investment costs over the life of the contract for benchmarking purposes.

Here again Lagos ports seem to deviate from the norm as most investment requirements are either of an event-triggered or discretionary feature, and this is not necessarily the best option for Lagos ports, and Nigerian ports in general.

Obligatory investments are most common in competitively-tendered PPP projects in countries which have problems with corruption, as pre-specifying the investment schedule increases the transparency of the bid evaluation process. It also makes the investment programme legally enforceable. Obligatory investment programmes are included in other PPPs when the investments are urgently required, and/or there is a single technical solution available. Unfortunately, this has not been the case in Lagos ports. On the other hand, experience has shown that obligatory investment programmes lasting more than five years are rapidly overtaken by technological and market changes, and unless renegotiated lead to investments which are not really needed and costs which are higher than they should be. They have therefore been largely replaced by indicative investment programmes which can be modified by mutual agreement. This creates a less confrontational atmosphere between the PPP partners, encourages innovation, and ensures that the majority of investments are commercially justified.

4.4.3 Duration

The initial duration of terminal concessions, before allowance for renewal options or negotiated extensions, is shown in Figure 1. Around two-thirds are for 20-30 years. The distribution is not symmetrical, as there are relatively few concessions of 31-49 years duration, and a secondary “spike” at 50 years caused mainly by the large number of 50 year JVs negotiated in China.

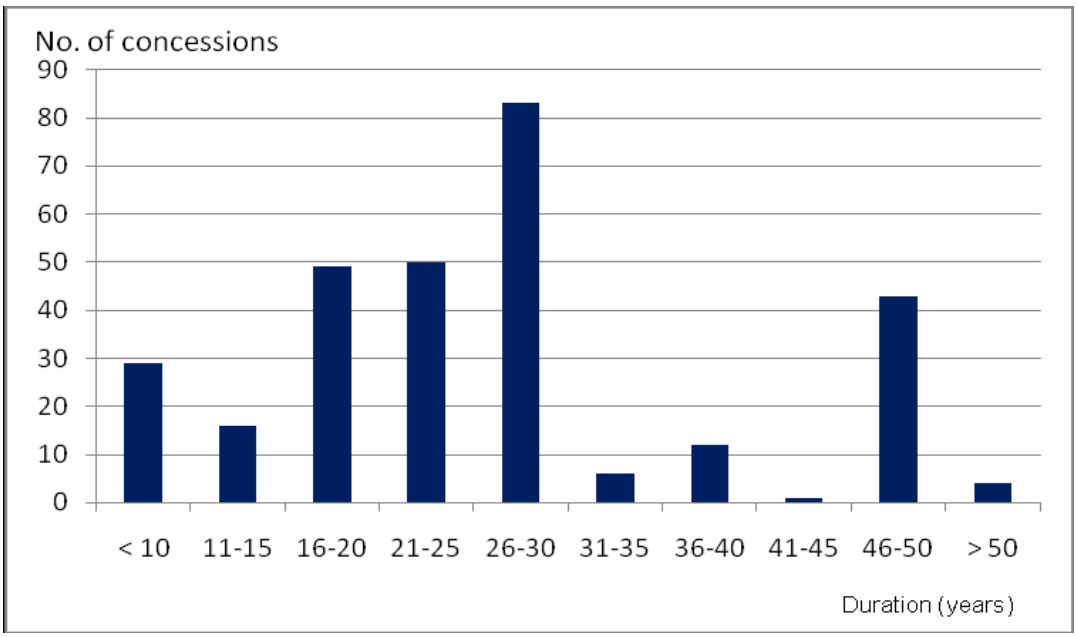


Figure 1: Duration of Container Terminal Concessions (years)

Source: Data compiled by the Consultant. Figures relate to 293 concessions for which there is published information on duration.

Around 15 % of terminal concessions include renewal options. In addition around 5-6% of concessions have already been extended by mutual agreement. If options and extensions are taken into account, the average concession duration increases by 10% from 27 years to 30 years. In Lagos, there are significant variations in concession duration:

- The lease agreement can be categorised into those with short-term duration (5-10 years) and those for medium-term duration (up to 25 years). For the former, East this may be due to the way the ports industry developed in Nigeria with a high reliance on expatriate management contractors or it may simply reflect the continued use of the asset leasing model. For the latter, the 25-year lease contract is surprisingly uniform across all other terminals regardless of their location, specialisation, technical life and asset depreciation. This is probably because the country at the time of signature seemed to have settled on preferred contract durations fundamentals (copy-cat concessioning) and then apply them to all port projects, irrespective of their economic.

- Short-term leases of public port assets of up to 10-15 years, tend to be concentrated amongst small, slow growing sub-sectors of ports which are experiencing limited technological change, such as general cargo berths or dedicated berths for the exclusive use of a single shipping line, where they are used as a means of locking-in key customers. Neither principle seem to apply for short-term leases in Lagos ports, thus leading us to believe that port ownership and financing models in Lagos (and Nigeria) is still unclear and fragmented.

On the other hand, there should be a clear relationship between concession duration and investment requirements when the data are highly aggregated. This can be seen by comparing the average investment associated with container terminal concessions of different duration in Table 1.

Date of award of concession	1990-95	1996-2000	2001-05	2006-10
Private investment (US$m)	182	126	184	306
Average concession duration (years)	27.2	25.2	29.7	31.6
No. of concessions in sample	28	48	47	45

Table 1: Relationship between private investment in terminals and concession duration

Source: Data compiled by the Consultant.

Economic logic suggests that concession duration should be linked not only to investment costs but also to the breakeven period required to recover these costs, and the rate of return required by private operators. Our analysis of Lagos port lease agreements show that (i) the correlation between investment and contract duration is low (r2 = 0.27) when based on individual terminals rather than size bands and (ii) there is little economic correlation between size of investment and contract duration, and his may be also linked to the event-triggered and discretionary nature of Lagos ports' investment requirements.

Another area which we found almost absent in the Lagos port lease agreements is the treatment of risk (asymmetric, traffic-related, transaction-related, etc.) in relation to private sector investment duration and requirements. Many of those risks are neither explicitly nor implicitly incorporated in the agreements which suggest that they are actually borne by the conceding party (NPA/BPE) thus deviating from the risk sharing principle of concession arrangements.

4.4.4 Performance Requirements

Port authorities generally support the view that concession agreements should include legally enforceable performance targets, even though it is difficult to define meaningful targets which fully capture customers' requirements. What is regarded as essential by one customer may be seen as no more than "nice to have" by another.

Some key customer requirements – for example 'flexibility', 'early notice' or 'faster document processing' – are difficult to quantify or affected by factors outside of the terminal operator's control such as Customs working hours or delays in ship arrivals. So the inclusion of productivity targets in port PPPs has been restricted to bland and fairly easy to achieve targets such as gross or net handling rates (TEUs per crane-hour or ship-hour) and has generally been declining. Two performance requirements have been increasing in importance, however: minimum guaranteed throughputs, and environmental targets linked to greenhouse gas emissions.

In Lagos ports, performance requirements are possibly the most contentious issue in lease agreements design and implementation. On the one hand, performance requirements are either reduced to (i) minimum guaranteed throughput but our analysis suggests that this is not justified by a robust traffic forecasting and performance model and (ii) minimum duration of free yard storage but such duration is not justified by a capacity threshold or congestion targets. In our recommendations (see below), we insist on appropriate estimation of port capacity and utilisation factors in which congestion targets are well defined and approximated in the concession agreements.

4.4.5 Tariffs

There is a fundamental distinction between PPPs which are free to set their own tariffs, and those whose tariffs are regulated, either by a formula within the PPP agreement or by the port authority or an independent regulator. Unregulated tariffs are found in areas where there is a lot of inter-port or intra-port competition, while regulated tariffs take place where geography, traffic volumes and/or terminal specialisation create natural monopolies.

Tariff regulation in ports usually takes the form of tariff ceilings which are not to be exceeded for individual shipments or – more rarely – in aggregate. This reflects the political hope that over time tariffs will draft downwards below the ceiling in response to competition from other ports; this sometimes happens, but many tariffs remain close to the regulated maximum.

Looking at the lease agreement, they appear to have a mix or regulated and unregulated tariffs although there is suggestion of tariff ceilings in some lease agreements. Further clarification from the NPA and terminal operators is needed to understand the real level and structure of those tariffs. What's more, Nigeria has no independent port (or competition) regulator in charge of tariff regulation, among others, and as such one can only assume that tariffs are regulated by contract by or through NPA. This may create a conflict of interest in that any increase of tariff charges will also benefit NPA under an NPV or revenue sharing arrangements.

4.4.6 Concession Fees

In the ports sector a wide variety of mechanisms is used, varying from lump sums through annual rents and throughput-related royalties to revenue sharing agreements. Some PPP agreements combine these elements into more complex payments structures designed to share risks more equitably.

There are at least 85 container terminals with published data on concession fees. Of these 60% have a simple fee structure (one mechanism only), 20% use two payment mechanisms in combination (usually rent + royalty), whilst 20% have a more complex fee structure or publish only the expected level of fees (usually as an NPV), not their structure (see Figure 2).

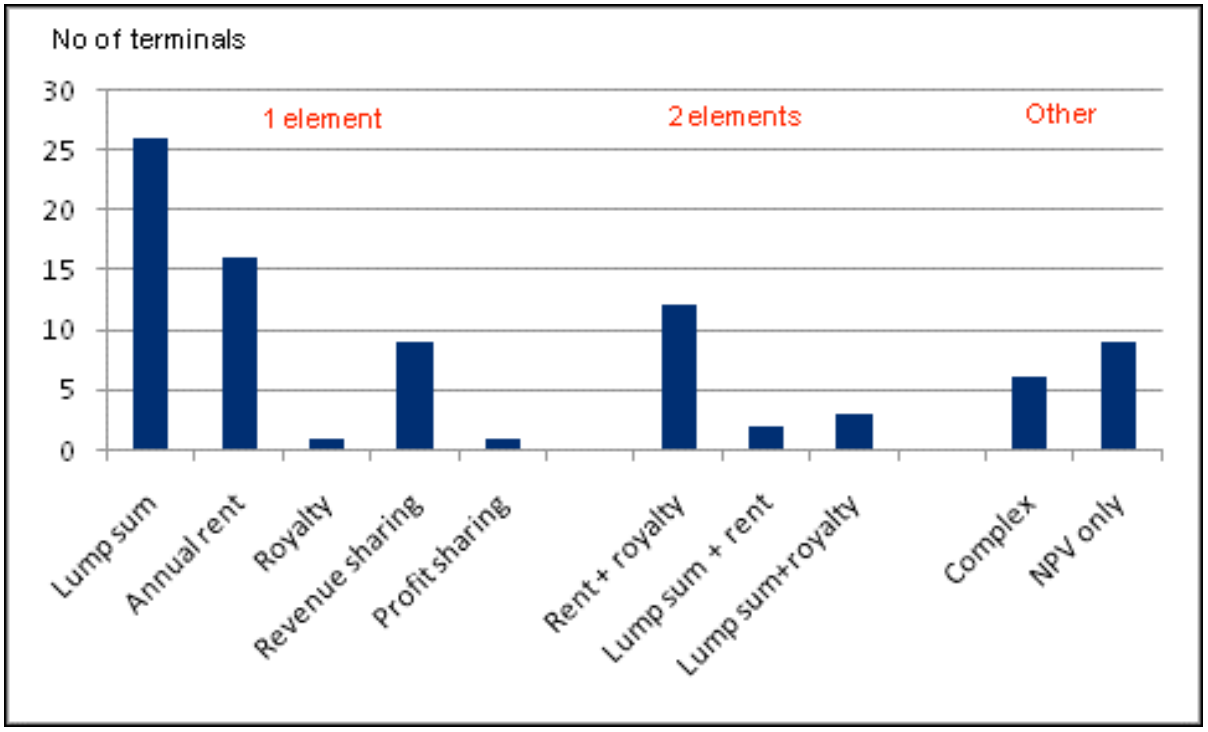


Figure 2: Concession Fee Structures for Container Terminals

Source: Data compiled by the Consultant

In Lagos ports, lease agreements are a mixture between lump sum money, annual rent and revenue sharing, and NPV calculations. There are lots of questions to be answered on how and why such fees have been selected and designed, how their collection and revision is being implemented in practice, and the potential of any market failure and conflict of interest. From the outset, we argue that rate-of-return regulation suffers from three major problems (see below for more discussion):

a. It provides little incentive for productive efficiency, since it allows firms (terminal operators) to pass increased production costs on to consumers in the form of higher prices.

b. Since the firm is assured a return on its capital investments, it may lead to excessive investment and use of capital.

c. The regulator needs a high degree of discretion to implement it. This facilitates regulatory capture by regulated firms, thus inducing rent-seeking behaviour from monopolists. The latter aspect is further complicated by the fact that in the existing port concessions, NPA assume the regulatory which may encourage regulatory capture that may result in decisions biased towards the interests of the regulated firm or a determined lobbying group.

d. Furthermore, these problems are exacerbated in an environment characterized by high inflation as it is the case in Nigeria and other African countries. Since the use of the NPV methodology requires time-consuming asset revaluations, prices will tend to lag behind cost increases unless regulated prices are reviewed frequently or mechanisms for building in expected future inflation are incorporated into the formula. Regular price regulation and yardstick benchmarking are therefore required.

What is clear at this stage is that the size of the concession fee offered is the most important single criterion for selecting the private sector partner in Lagos ports. The port authority and/or Government

seem to use the lease agreement to capture for itself some of the 'economic rent' associated with terminal concessions. This may not be the right answer to the congestion problems and inefficiency of the port system, and lessons for structuring port concessions towards performance and economic targets must be learnt from other countries, most recently Brazil, where other operational and economic criteria are highly weighted compared to the financial contribution from the private partner.

4.5 Recommendations

Recommendation 8: Establish terminal capacity and utilisation and link it to performance targets

One of the main issues in port operations is the determination of port capacity. Port capacity is dynamic (rather than static) and changes according to the equipment and technology used but also according to the types of ships serviced and cargo handled. Establishing performance targets in concession agreements, e.g. minimum throughput guarantees and/or congestion and dwell time indicators, depend very much on the approximate estimation of port capacity because otherwise such targets may be too easy or too difficult to achieve. In Lagos ports, we did not come across any sophisticated estimation of terminal capacity and utilisation that is linked to performance targets, and it seems that the calculation of port capacity was rather simplistic and did not take into consideration technological changes both in port demand and supply. We recommend that such calculations be part of any mid-term review or auditing of Lagos port concessions.

Recommendation 9: Move away from discretionary or event-triggered investment requirements to obligatory or indicative investment types

This recommendation is closely related to the previous one in that it indicates that NPA and BPE have almost left it up to the terminal operators to decide on the timing and type of investment requirements according to their own estimation of port capacity and utilisation ratios. Such an approach implies either incompetence or indifference from the part of the public authority and may send the wrong signals to private investors.

Recommendation 10: Establish PPP management teams at NPA

This recommendation is also related to the above in that the way Lagos port concessions have been structured and are implemented imply that NPA lacks the skills base for planning, designing, and managing port concessions (and PPPs in the larger context). There is indeed no PPP management team at NPA, and most of the existing structures focus around procurement rather than PPP frameworks. Our recommendation has indeed been well received by NPA management during the stakeholders' workshop as well as during our meetings with NPA managers.

Recommendation 11: Link concession fees with performance targets

In Lagos ports' concessions, there is little or no correlation between concession fees and performance targets and clauses towards such arrangements should be included in any mid-term review and/or future port concession. In a similar vein, NPA which enjoys a monopoly over marine services should also operate according to a system of performance targets.

Recommendation 12: Mid-term audit (short-term study) of PPP concessions

In view of the above shortcomings and anomalies, we recommend a mid-term review of port concessions in the form of a targeted short-term study on port concessions (past, existing, and future) to underline in detail areas of abnormalities and recommendations for improvement. Such a study should be undertaken with the full involvement and partnership of all the parties involved most notably, NPA, BPE, and concessionaires (terminal operators).

Recommendation 13: Establish a ports (and logistics) regulator

In Nigerian ports, the current approach is to use contract law to enforce the terms of concession agreements, with responsibility for enforcement vested in the landlord port authority (NPA), other governmental agencies such as BPE and the infrastructure council, and/or affiliated entities such as the Nigeria Shippers Council and the Ports Consultative Committee. The greatest danger from such an approach probably lies in the lack of impartiality, increased levels of political interference, and possible conflicts between regulatory and policy issues. There is also a danger in assigning too strong a regulatory role to the landlord port authority and other governmental agencies resulting in them micro managing privatised businesses. There is also the risk for conflicts of interest and regulatory capture (development of common interests by the regulator and the organisation being regulated). Furthermore, it is rare to find the necessary skills and experience within a landlord port authority or particular sector agency. Because they tend to adopt a very pragmatic approach to the resolution of individual problems, it may also be difficult to develop a standardised and intellectually consistent approach.

An independent regulator is therefore essential to control entry (entry regulation), to determine tariff (rate regulation), to set the performance standards (performance regulation and yardstick benchmarking), and (sometimes) to set technical standards (health and safety, security, environmental, and labour regulation). Additionally, the regulator may be required to act as an arbitrator (to handle disputes), as well to mange any universal or social service obligations imposed by the authorities. At the same time, it might be better to put in place a multi-sectoral regulator for the ports and transport logistics sector as a whole to cover the dry ports and freight logistics sectors as well. There are four main arguments in favour of a multi-sectoral regulator:

a. *It makes more cost effective use of resources, which is important in a country where regulatory skills and experience are still poorly developed*
b. *It ensures that the same principles are applied to all transport infrastructures, eliminating unfair competition at the margin where different modes compete.*
c. *It supports the development of specialist knowledge and expertise, including the transfer of best practice between modes.*
d. *It encourages the development of a single set of policy guidelines, which recognise the inter-relationships between different modes and their common policy objectives.*

Recommendation 14: Structure PPP port projects which also include intermodal investments

This recommendation goes along with a previous recommendation to establish dedicated freight routes and services. In the absence, or lack, of public investment in intermodal infrastructure, new or renegotiated concession arrangements should be structured in a way that private operators not only invest in port infrastructure and services, but also in hinterland links from-to the port.

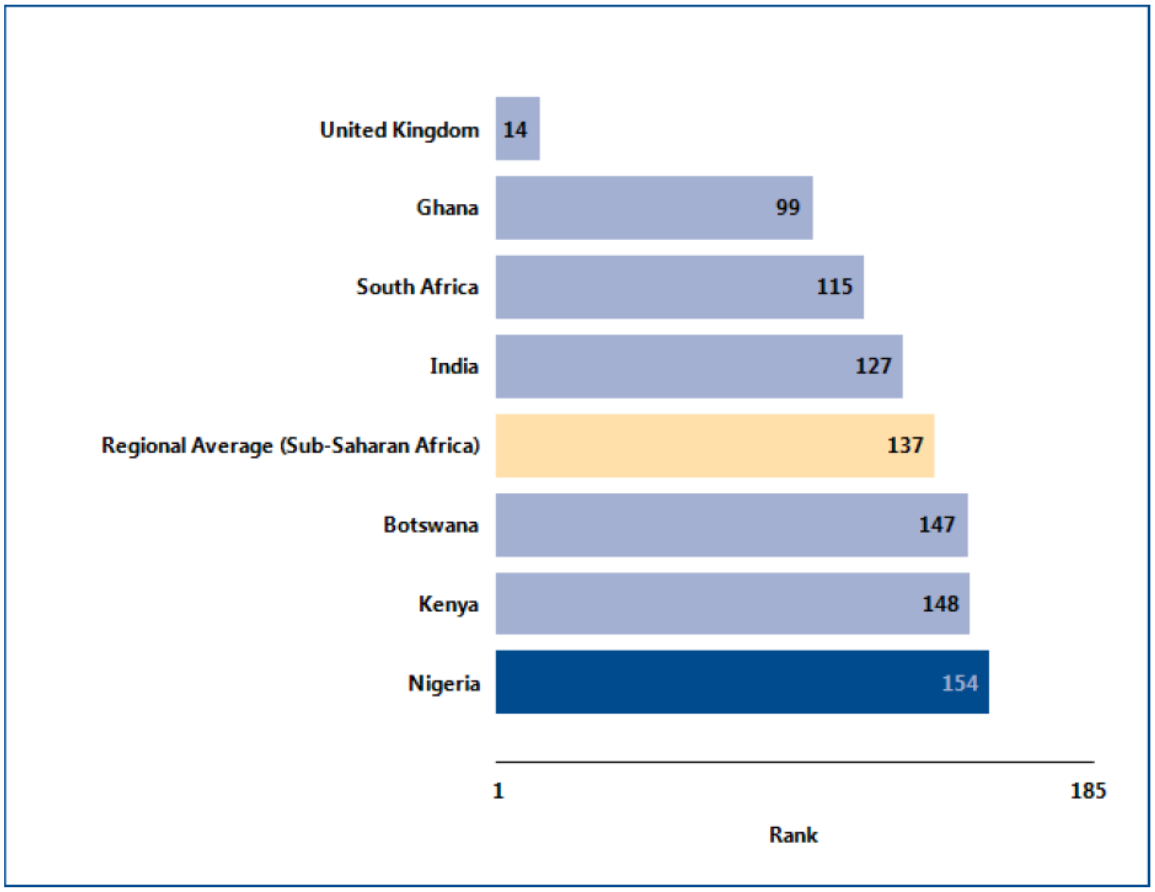
5. Customs and Trade Facilitation

5.1 Context (international best practise)

Globalisation has brought about vastly increased competition in the international market place and has underlined the requirement for predictable, efficient and economic supply chains. Several studies have cited 'predictability' as the most important element. Lagos Ports do not offer predictability to exporters, and particularly not to importers. The global financial crisis has left a legacy of traders migrating to more robust payment terms such as letters of credit, the processes and procedures for these financial instruments need to be streamlined to avoid delays in availability of documentation. Due to the country risk, Nigerian importers have traditionally used these payment methods but, even so, it is likely the incidence has increased. In the supply chain documents must keep pace with the cargo itself or release from the ports will be delayed. Thus, a complex package of issues, identified below, combine to create intense congestion in the Lagos Ports. This significantly increases the cost of importing cargoes by seafreight into Nigeria and makes non-oil exports non-competitive in world markets, in turn stifling trade and economic growth.

Nigeria currently (2013 report) ranks 154 over 185 economies assessed in the Trading Across Borders element of the IFC Ease of Doing Business Report.

Figure 9.1 How Nigeria and comparator economies rank on the ease of trading across borders



Source: Doing Business database.

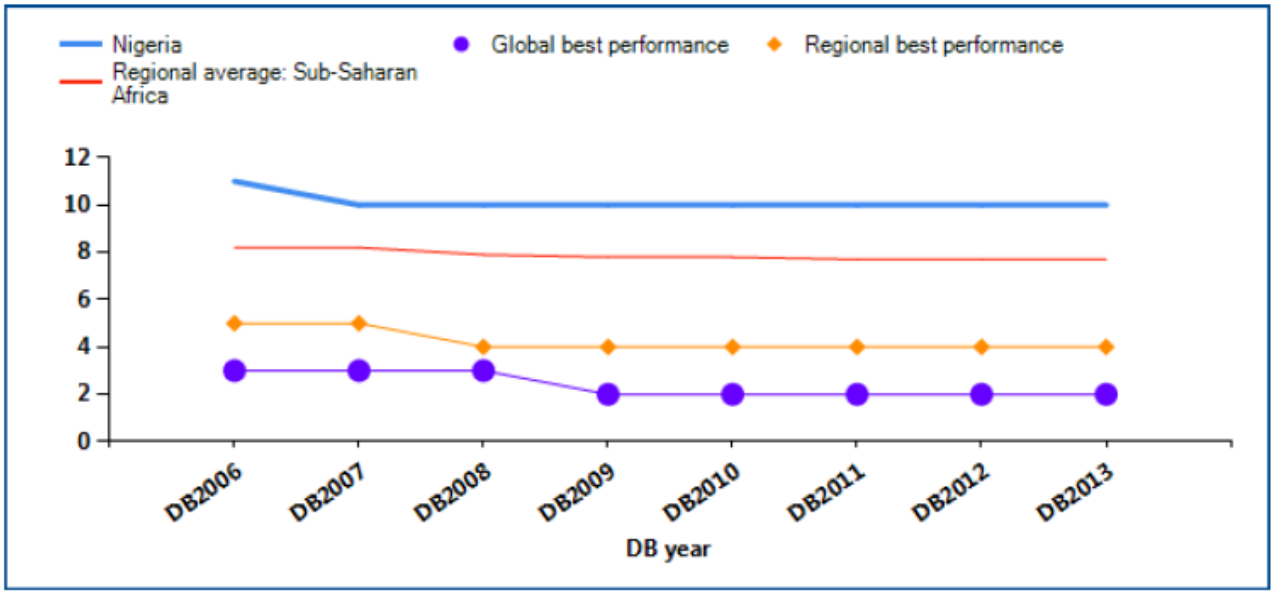
Table 9.1 The ease of trading across borders in Nigeria over time
By *Doing Business* report year

Indicator	DB2006	DB2007	DB2008	DB2009	DB2010	DB2011	DB2012	DB2013
Rank	..	..	..	..	..	..	153	154
Documents to export (number)	11	10	10	10	10	10	10	10
Time to export (days)	41	26	26	25	25	24	24	24
Cost to export (US$ per container)	798	1,026	1,026	1,179	1,263	1,263	1,263	1,380
Documents to import (number)	14	10	10	10	10	10	10	10
Time to import (days)	53	46	46	42	41	39	39	39
Cost to import (US$ per container)	1,460	1,047	1,047	1,306	1,440	1,440	1,440	1,540

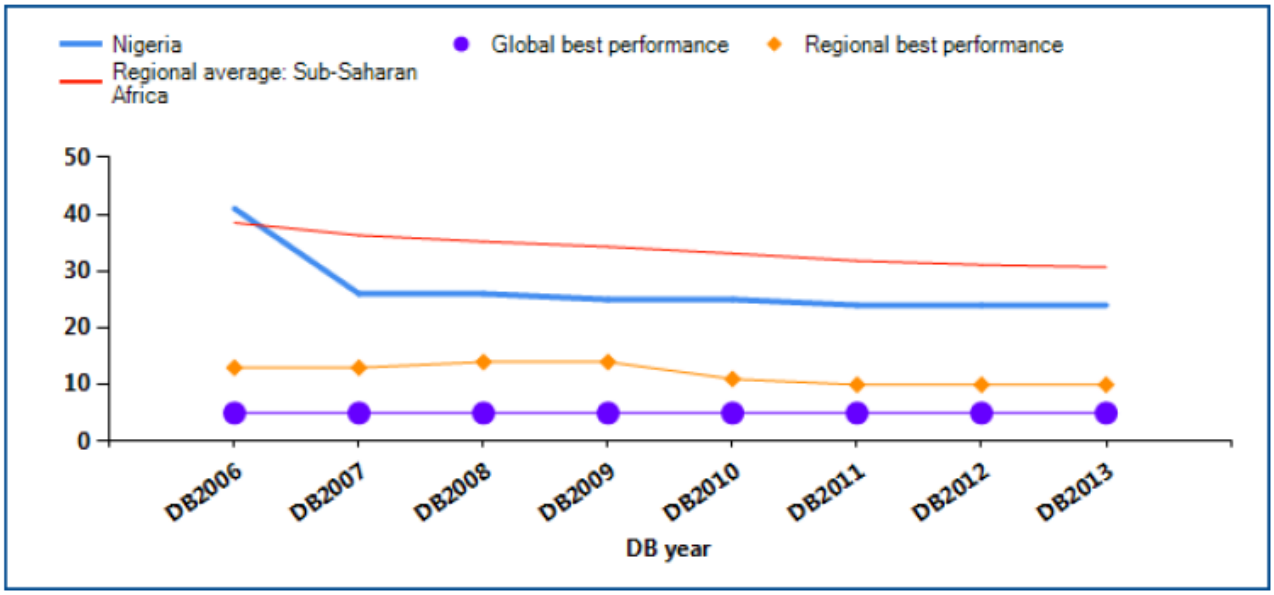
Note: n.a. = not applicable (the economy was not included in *Doing Business* for that year). DB2012 rankings shown are not last year's published rankings but comparable rankings for DB2012 that capture the effects of such factors as data corrections and the addition of 2 economies (Barbados and Malta) to the sample this year.
Source: Doing Business database.

Figure 9.2 Has trading across borders become easier over time?

Documents to export (number)

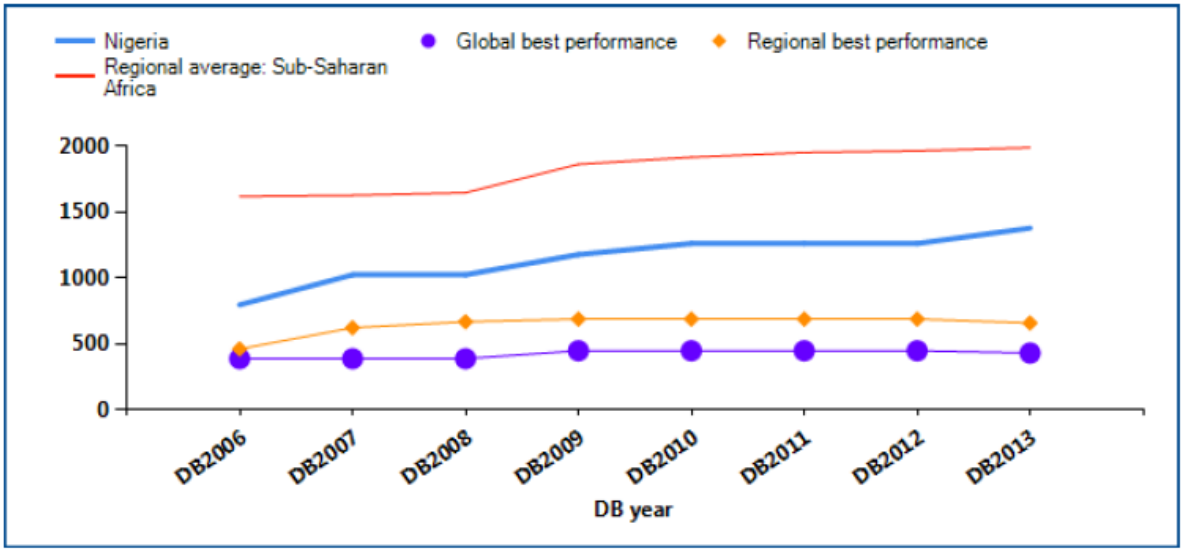


Time to export (days)

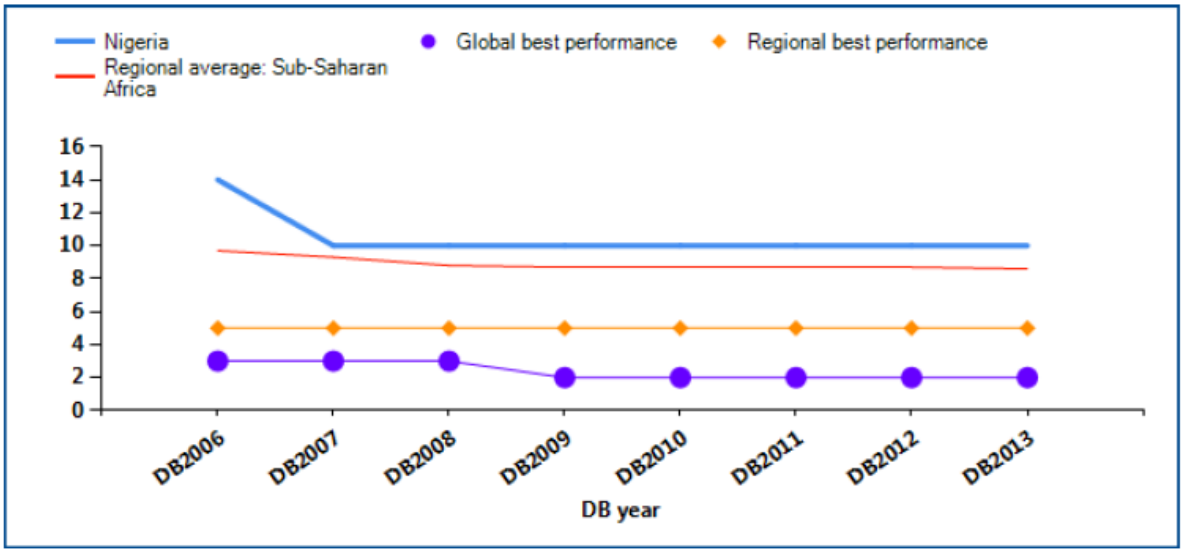


TRADING ACROSS BORDERS

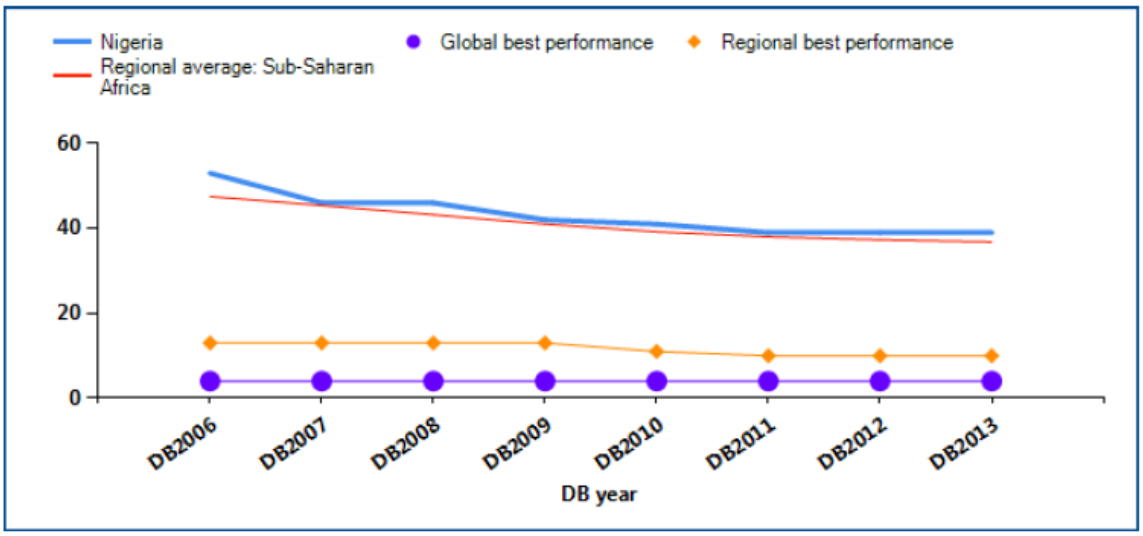
Cost to export (US$ per container)



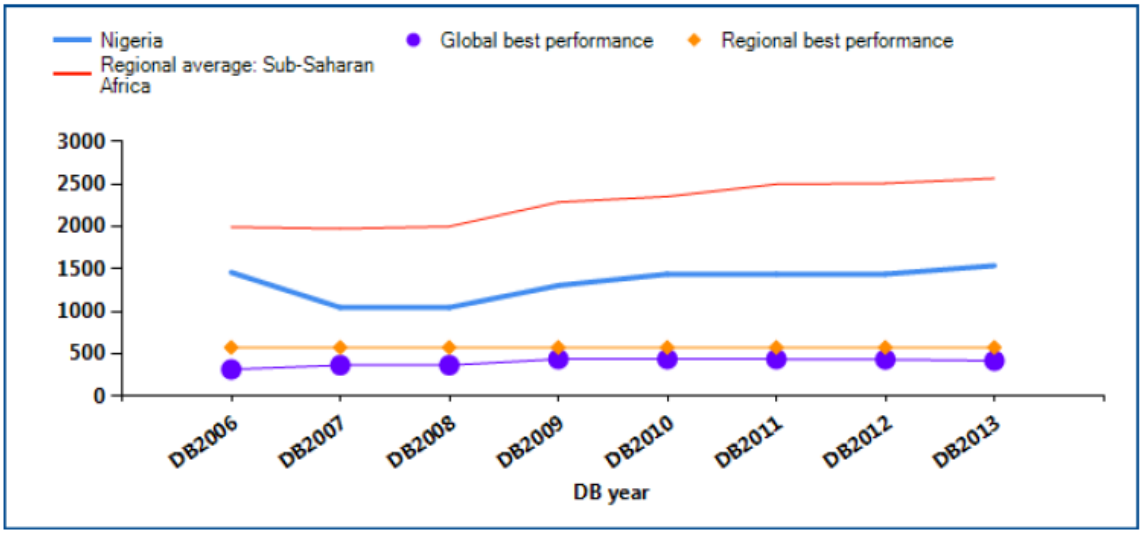
Documents to import (number)



Time to import (days)



Cost to import (US$ per container)



Source: Doing Business database.

Table 9.2 How has Nigeria made trading across borders easier—or not?
By *Doing Business* report year

DB year	Reform
DB2008	No reform as measured by Doing Business.
DB2009	Port facilities at Apapa port in Lagos were upgraded thereby speeding up the import and export process.
DB2010	No reform as measured by Doing Business.
DB2011	No reform as measured by Doing Business.
DB2012	No reform as measured by Doing Business.
DB2013	No reform as measured by Doing Business.

Note: For information on reforms in earlier years (back to DB2006), see the *Doing Business* reports for these years, available at http://www.doingbusiness.org.
Source: Doing Business database.

Table 9.2 illustrates that port facilities at Apapa Port were upgraded in 2009 and this was recorded in the report. The result was noted as being quicker import and export processes.

The issues identified below influence and affect the way terminal operators perform in the Lagos Ports, cause delays in the cargo release process and increase the cost of carrying out international trade. Importers into Nigeria cannot use standard internationally accepted methodologies to calculate the landed cost of their cargoes because the formal receipted cost is exaggerated by informal payments required to expedite the complex activities and processes involved.

To compare Nigeria to its neighbours on these indices, below is a table of the figures obtained from the 2013 World Bank Doing Business Report for each respective country:

Indicator	Rank	Documents to export (number)	Time to export (days)	Cost to export (US$ per container)	Documents to import (number)	Time to import (days)	Cost to import (US$ per container)	Reforms noted by World Bank
Nigeria	154	10	24	1,380	10	39	1,540	No reform as measured by Doing Business.
Ghana	99	7	19	815	7	34	1,315	Ghana added to the time required to import by increasing its scanning of imports and changing its customs clearance system.
Benin	130	7	29	1,079	8	30	1,549	Benin reduced the time required to trade across borders by implementing an electronic single-window system integrating customs, control agencies, port authorities and other service providers at the Cotonou port.
Senegal	67	6	11	1,098	5	14	1,740	No reform as measured by Doing Business.
Cote d'Ivoire	163	10	25	1,999	10	34	2,710	No reform as measured by Doing Business.

5.2 Lack of streamlined procedures / processes

5.2.1 Import

Nigeria is an import dependent economy and, as such, the importance of controlling cost in the purchasing process is key to the economy and ultimate competitiveness. Economies which prosecute streamlined procedures for import cargoes always have a comparative advantage. The import process at Nigeria's entry points specifically for this study, Lagos ports are complex, costly and inconsistent. Complexity is compounded due to Nigeria's foreign exchange protocols involving the Form M process, effected by the Central Bank of Nigeria (CBN). The Form M, in effect, becomes the constant backbone to the import process as it has linkage with opening the documentary letter of credit, cargo insurance, tariff classification and destination inspection (DI).

It is important to disaggregate *customs clearance* from *cargo release*. Following customs clearance (and usually payment of import duties and other relevant taxes), a release process takes place including surrender of original shipping documents (Bills of Lading) to the appropriate shipping line's agent at the port. The consignee then has to arrange haulage to collect the container / load and final gate release.

Many stakeholders interviewed clearly put the majority of the blame for slow release of cargoes to Nigeria Customs Service (NCS). Certainly, the incidence of physical examination of cargoes and / or scanning is much higher than reflected by global best practice. NCS respond that this is because of low levels of compliance by traders which results in most cargoes being considered medium to high risk. Delays which are within the operational control of NCS are compounded by lack of scanner throughput capacity. Concern is exacerbated by the intention to migrate DI activities from private sector contractors to NCS. There is a fear in the trade that this will lead to increased delay in the clearance process and, possibly, increased acrimony in relation to customs decisions. 'Negotiation' subsequent to the scanning process can cause considerable delay. NCS utilise Asycuda++ customs management system but stakeholders stated that very often paper declarations still have to be presented.

Following customs clearance, delays are frequent in the release process and exit from the port gates. Letters of credit opened in Nigeria are regularly over complex, exporters find it challenging to meet documentary requirements and, consequently, their documents are often discrepant when presented to the nominated bank. Until the discrepancy issues are resolved the documents remain locked in the banking system and are, thus, not available to the importer for release of the cargo. The response to this is very often guarantees being provided to the line's agent, by the consignor / consignee, to release the cargo without the submission of an Original Bill of Lading. This practice, in itself, has dubious legal standing under Bill of Lading conditions and should be discouraged. It is however symptomatic of the desire to obtain release of cargo and thus control extra charges in relation to demurrage, container rental and quay rent.

The globally accepted costs of importing are significantly increased by informal payments made to various stakeholders to expedite cargo release.

There are current plans to establish a Port Community ICT platform, connected to the National Single Window. It is essential that all the import and export processes are thoroughly mapped, modernised, simplified and streamlines before migration to the electronic solutions.

5.2.2 Export

All exporters must register with NEPC and open a Non Oil Export Proceeds Domicillary Account. NESS fees may have to be paid and pre-shipment inspection arranged with Cobalt. This suggests that, even prior to shipment, an exporter has to navigate processes and procedures which do not feature in most other economies. The actual dwell time at the port for exports (average 1.2 days) is not excessive in relation to international standards but it is believed that, due to concerns over congestion at port access points, and delays in export clearance, many exporters try to deliver their cargoes many days in advance of vessel arrival. This adds to congestion at the terminals and impacts adversely upon other terminal activities.

5.3 Reliance on multiple paper documents / human intervention

Currently, paper documents are used extensively in the clearance and release process. This complicates and delays the clearance and release processes. Visits to the terminals confirmed that operational areas become clogged with stakeholders transferring documents between the agencies operating at the port. Importers find it very difficult to track their cargoes through the clearance process and it is usual for agencies to find 'inconsistencies' in documentation requiring extra fees to allow the importation process to proceed. This reliance of human intervention in the process facilitates corruption, prohibits process tracking and significantly contributes to delays and cost escalation.

5.4 Infrastructure, congestion, use of ICDs

The infrastructure at Lagos Ports is insufficient to meet current cargo volumes and it is clear that congestion issues can only be mitigated rather than eradicated until this is resolved which is a long term process. A standard mitigation measure is removal of cargoes from port areas to off-port facilities.

In 2008, extreme congestion at Lagos Ports resulted in the Ministry of Transport establishing a number of off-port customs bonded storage facilities, known as Inland Clearance Depots (ICDs) By 2010 there were more than 20 ICDs operational in the Lagos area. Transfer of import cargoes to respective ICDs promptly after vessel arrival would be a considerable benefit and congestion mitigation measure. During the study stakeholders advised that ICDs were not effectively in use. Indeed, it seems in many cases they are used by shipping lines solely for the storage of empty containers. International best practice is to move cargoes away from port areas immediately upon arrival, in bond, to an inland clearance facility.

The cost of transfer of containers to the ICDs appears to be an issue which requires further investigation. The transfer can cost as much as US$400 per 40ft FCL and US$300 for a 20ft FCL. Such costs are usually met by terminal operators within their operational responsibilities but only if included in the original concession agreement. It was reported that even Maersk Line do not use the APM ICD facility which underscores under utilisation of these facilities. Shortage of haulage can mean that the transfer process can take several days if suitable units are not available. It is also possible that transferring containers from terminal areas to ICDs exacerbates traffic congestion in the roads around the port area. This was reported by stakeholders who suggested that using the ICDs can be counter-productive.

The rail line needs to be extended at the ports in order for the rail and ICD system to be effective. At the time of this report, APM Terminal was in discussion with the NRC to extend the line into their terminal, and expected the construction to be completed within the next year. This is a very positive action.

5.5 Lack of traders compliance and capacity

NCS (Nigerian Customs Service) are very clear that that they operate in an environment where non-compliance by traders is rife. However, intentional non-compliance with regulatory controls must be separated from unintentional breaches of the rules. Both of these scenarios can be mitigated by training and capacity enhancement for traders (indeed for other stakeholders too). It is also important to disaggregate where non-compliance occurs because extant systems are not conducive to commercial reality or are inconsistent from clear criminal intent.

Traders can only be compliant if they are aware of current legislation and regulations and understand how they affect their own commercial activity. They also need to know how to comply from an operational perspective. Consequently, access to information is critical. The usual practice in Nigeria is for traders to use forwarding agents and / or customs agents / brokers to handle the import or export formalities. Very often the trader has no idea if their appointed agent is acting legally or not, even though they retain responsibility for declarations, and other formalities, made on their behalf.

Additionally, traders / importers can influence reduction of port delays by following good practice in their contracting processes, including correct opening of financial mechanisms such as, and particularly, letters of

credit (L/Cs). Very often L/Cs are opened with over demanding documentary conditions with which the exporter must comply in exchange for payment. This is often a challenge for exporters – the result is that they present documents to their nominated bank which do not fully comply with the L/C. The result is that the documents, required for clearance of the cargo, become locked into the banking system until the discrepancies are accepted or corrected. As a result there is a high incidence of cargoes arriving at Lagos Ports which cannot be legally released simply because the requisite documents (for example, Original Bills of Lading) are not available when the vessel arrives as they have not been released by the bank. Under such circumstances cargoes cannot legally be removed from the port until the documents become available, increasing congestion. Very often importers are not sufficiently trained in how to operate L/Cs and best practice in relation to the opening process and documentary conditions. In the export environment, traders often lack capacity / knowledge of the export process and robust contracting (for example use of correct Incoterms), this can delay shipments and add to the exporters risk.

It was also clear from many stakeholders that a significant volume of importers are slow in taking delivery of cargoes. This is a compounding factor in relation to congestion in port areas. It will be important to explore why this is happening, it may be that importers see the terminal areas as cheap warehousing or that they lack funds for payment of duties.

5.6 Customs delays, scanning and Destination Inspection

Many stakeholders interviewed place the majority of blame for port congestion on NCS activities. It is not unusual in developing economies for revenue authorities / customs to be considered the principal reason for cargo delays and hence congestion at entry points. NCS are undertaking a good modernisation process but it is clear that customs activities are still a major cause of delays in the port areas. NCS use Asycuda ++ customs management system but stakeholders informed that paper entries still often have to be submitted and 'walked' through the system. General / perceived lack of compliance means that NCS take the view that the majority of consignments should be scanned prior to release or subjected to intrusive examination (although 100% scanning has been discontinued). This is contrary to global best practice in customs risk management system. Unfortunately, scanning capacity at the Lagos Ports is insufficient for demand and, naturally, this is another cause for delayed release and thus congestion. It should also be noted that the planned transfer of the Destination Inspection process , from private sector contractors back to NCS, could further exacerbate the delays due to insufficient capacity.

5.7 Bureaucracy and fraud

It was evident from stakeholder's comments that fraud / corruption is rife in relation to the activities involved in importing and exporting cargoes at Lagos Ports. This adds to the cost of doing business and is illegal. There is a common view from stakeholders that the only way to expedite cargoes movements through the process and through the port is by facilitation payments. Human intervention in all aspects of the process enables this prevalence of fraud and therefore the migration to an electronic Port Community System, integrated with the National Single Window should be expedited.

5.8 High freight forwarding cost

The exceptionally high cost of freight forwarding (around $5-600 per consignment) was noted with concern as was the capacity and professionalism of many forwarders. CRFFN, as the regulatory body for the profession, have established an excellent training curriculum (albeit with some gaps) which is being rolled out. However, it is likely that the 'briefcase' forwarders who are very prolific would not undergo this training. It is also likely that these forwarders follow dubious practice to the detriment of legal operators. It would appear that much of the cost reflects 'informal' payments which are not receipted.

5.9 Recommendations

Recommendation 15: Public / private sector Port Stakeholder Group

Nigerian Shippers Council delivers excellent advocacy services and stakeholder activities. We would suggest the establishment of / changes to a 'Port Stakeholder Group' consisting of public and private sector stakeholders. Such groups can have significant benefit if:

1. *They meet regularly*
2. *Actions are followed up / responded to adequately*
3. *Membership of the group is appropriate*

The customer base of Lagos Ports is very wide, from multinationals, such as Nestle / Dangote with high volumes of FCL / Bulk cargoes to very small entrepreneurs importing or exporting occasional LCL shipments. Such extremes of magnitude need to be incorporated into the group to give credibility and a true reflection of the issues faced. Similarly with forwarders, representation would be required from very large organisations, such as Bollore, to the small licensed operators. Such groups only maintain credibility if they are seen to act appropriately and a useful model is to invite to each meeting a group of importers / exporters who have registered issues concerning the Ports in the preceding weeks (a different group at each meeting). The group should each be allowed a few minutes to detail the problem they have faced, the management should then be required to investigate the problem and respond to the respective traders, describing the action that will be taken, before the next meeting. Meetings should be at least every 4 weeks and records maintained and published of remedial actions taken.

Recommendation 16: Accelerate Single Window Initiative / PCS

The Nigerian Shippers Council is providing very good linkage between the Port Community System and the National Single Window initiative. Connectivity between regulatory authorities / Government departments and the relevant private sector stakeholders is key to providing a streamlined process for importers and exporters alike. The initiative should be accelerated but with two key imperatives:

1. *All the business processes should be thoroughly reviewed and simplified prior to migration to an electronic system*
2. *The system should have the capability for future expansion, particularly in relation to private sector actors in the international supply chain. In Nigeria, there would be significant benefit in including the trade finance mechanisms, in addition to foreign exchange control and repatriation of the proceeds of exports.*

Recommendation 17: Study into use / misuse / non-use of ICDs

Better use of the various ICDs around Lagos, and the six Inland Container Depots (ICDs) in Ibadan, Kano, Isiala-Ngwa, Jos, Maiduguri and Funtua, would significantly reduce dwell time for containers in the terminals awaiting clearance. Such dwell time can be significant so prompt transfer, in bond, to ICDs makes much sense. We recommend that an immediate study should be instigated to consider:

1. *Why current ICDs are not more widely used, what are the constraints?*
2. *To what extent are the ICDs misused?*
3. *Provide traders with knowledge of the regulations / criteria for the use of ICDs*
4. *Are the ICDs correctly located, are more required*
5. *Explore legal basis for mandatory use of ICDs by terminal operators*

Consider traffic implications if ICDs were to be more fully utilised.

Recommendation 18: Streamline processes and procedures from Form M stage onwards for imports and for exports up to shipment

A comprehensive mapping exercise of import and export procedures needs to be undertaken. The timing is good as it should link with migration to the Single Window.

1. *For imports, the exercise should start when the buyer establishes purchase contract and completes Form M and end when final delivery takes place (Incoterms CPT destination).*
2. *For exports, the exercise should start at establishment of sales contract and end when consignment is shipped (Incoterms FCA / FOB point)*

This should be a precursor to the extensive streamlining of current systems. An additional benefit to system streamlining would be improved ranking in IFC Trading Across Borders index.

We would like to emphasise this mapping exercise would be specifically from the ports decongesting viewpoint, that is with a slightly different emphasis to the other mapping exercise currently underway by projects such as single window.

Recommendation 19: Fast track for export cargoes / AEO

Traders with a proven record of compliance should be given immediate fast track facilities for their import cargoes, possibly linked to a wider AEO / trusted trader scheme. This would be a quick initiative to reduce dwell time in the port for regular compliant users. Please also see 6.6, below.

Recommendation 20: Improve trader capacity – export / import skills / reward compliance

Traders (importers and exporters) need the necessary skills and knowledge of current international trade protocols, rules and best practice to enable them to be efficient, compliant and cost effective in their operations. It became clear during the study that traders (and also other international trade stakeholders including public sector) are not conversant / up to date with the most fundamental protocols such as

Incoterms (contract terms) and UCP (letter of credit rules) nor with documentation requirements or shipping procedures. We recommend delivery of capacity building seminars / workshops to rectify this. The result will be improved compliance and thus quicker clearances. This links with 6.5 above.

Recommendation 21: Ratify Rotterdam Rules – migrate to non-negotiable waybills

Nigeria has gone a long way in promoting international acceptance of the Rotterdam Rules (replacing Hamburg Rules and Hague Visby rules as the conditions of carriage for maritime transport). Signature has taken place but ratification is awaited (as it is globally). We encourage the continuation of this important work strand. It would eventually facilitate the migration from negotiable Bills of Lading to Waybills (paper or electronic) and would in many cases expedite cargo release (as this could take place without surrender of an original document which may be delayed). The Rotterdam Rules also facilitate conditions of carriage on a multi-modal basis, for example by sea to Lagos then by road / rail, as a sealed unit, to Kano ICD.

Recommendation 22: Encourage capacity of freight forwarders / professionalism

CRFFN are moving forward with their training programme for freight forwarders. The performance of forwarders / customs brokers / clearing agents links directly with clearance and release times. As such, we recommend that the training programme is accelerated and only qualified companies and individuals should be permitted to operate in Lagos Ports.

Recommendation 23: Expedite intermodal / rail connectivity

There are several on-going activities in relation to improving overall connectivity. For example, rail link direct to APM Terminal and the re-establishment of the Kano rail operation. Intermodal connectivity is crucial to relieve congestion in the Lagos area. We recommend regular progressing so that these intentions become medium rather than long term realities.

Conclusions

Professor Monye's office should validate our recommendations and the prioritisation, followed by securing funding, and then begin implementation. The first action should be to set up the ports working group we have recommended who can address each recommendation.

6. Summary of Recommendations

No.	Recommendation	Timescale	Impact
1	Establish port performance and price review (yardstick benchmarking)	MEDIUM TERM	HIGH
2	Disaggregate terminal congestion from port congestion	SHORT-TERM	HIGH
3	Move freight stations outside terminal (may be still in the port)	SHORT TERM	HIGH
4	Compile and publish detailed KPIs for port performance	SHORT TERM	LOW
5	Develop dedicated freight routes and services (new or existing)	LONG TERM	HIGH
6	Introduce congestion charging in cargo storage and as a port pricing mechanism	MEDIUM TERM	MEDIUM
7	Introduce appointment system for trucking services	SHORT TERM	MEDIUM
8	Establish terminal capacity and utilisation and link it to performance targets	MEDIUM TERM	MEDIUM
9	Move away from discretionary or event-triggered investment requirements to obligatory or indicative investment types	MEDIUM TERM	MEDIUM
10	Establish PPP management teams at NPA	SHORT TERM	MEDIUM
11	Link concession fees with performance targets	ACTION AT CONCESSION RENEWAL STAGE	
12	Mid-term audit (short-term study) of PPP concessions	SHORT TERM	MEDIUM
13	Establish a ports (and logistics) regulator	MEDIUM TERM	HIGH
14	Structure PPP port projects which also include intermodal investments	LONG TERM	HIGH
15	Public / private sector Port Stakeholder Group	SHORT TERM	MEDIUM
16	Accelerate Single Window Initiative / PCS	SHORT TERM	HIGH
17	Study into use / misuse / non-use of ICDs	SHORT TERM	HIGH
18	Streamline processes and procedures from Form M stage onwards for imports and for exports up to shipment	SHORT TERM	MEDIUM
19	Fast track for export cargoes / AEO	SHORT TERM	MEDIUM
20	Improve trader capacity – export / import skills / reward compliance		
21	Ratify Rotterdam Rules – migrate to non-negotiable waybills	MEDIUM TERM	MEDIUM
22	Encourage capacity of freight forwarders / professionalism	SHORT TERM	HIGH

7. Appendix 1: Workshop presentation

Support to Presidential Committee on Port Reform

Findings from Lagos Ports Assessment

DFID Office, Ikeja
Lagos, July 2013

Jon Walden and Khalid Bichou

Todays agenda:

1300 hrs	Registration
1315 hrs	Welcome & introductions
1330 hrs	Port concessions - Khalid Bichou
1400 hrs	Port performance - Khalid Bichou
1430 hrs	Trade Facilitation - Jon Walden
1500 hrs	Coffee
1530 hrs	Discussion on findings / acceptance?
1630 hrs	Close

Observations regarding concessions and performance regulation in Lagos ports

Dr. Khalid Bichou

Content

Scope and Purpose

Concession agreements submitted to Consultant relating to Lagos ports:

- Lease agreement of 03 June 2005 for Break Bulk Terminal D at Apapa port between NPA (Lessor), BPE (confirming party), and ENL Consortium Limited (Lessee).
- Lease agreement of 24 October 2005 for Apapa Port Terminal A between NPA (Lessor), BPE (confirming party), and Apapa Bulk Terminal Limited (Lessee).
- Lease agreement of 24 October 2005 for Apapa Port Terminal B between NPA (Lessor), BPE (confirming party), and Apapa Bulk Terminal Limited (Lessee).
- Lease agreement of 19 September 2005 for Apapa Container Terminal between NPA (Lessor), BPE (confirming party), and APM Terminals Apapa Limited (Lessee).
- Lease agreement of 18 May 2006 for Tin Can Island Terminal B between NPA (Lessor), BPE (confirming party), and Tin Can Island Container Terminal Limited (Lessee).
- Lease agreement of 11 May 2006 for Tin Can Island Terminal C between NPA (Lessor), BPE (confirming party), and Port and Cargo Handling Services Limited (Lessee).

Characteristics of PPPs in Nigeria

PPP models in the ports sector

1. The management/investment model for existing public assets

- Private operator manages publicly owned assets and makes additional investments in them, in exchange for being given the right to use them for a specified period of time.
- Ownership of the public assets remains with public sector throughout this period; privately-funded fixed assets are usually taken into public ownership immediately after construction, whilst privately-funded mobile assets usually remain in private ownership.
- This is reflected in the 'transfer-back' arrangements at the end of the contract period

2. The development rights model for new private assets (BOT)

- Private investor buys the right to build new port assets and have use of them (exclusively or on common-basis) for a fixed period of time before transferring them to public sector.
- This is a model which has been increasing in popularity in the ports sector as the stock of public assets suitable for private management has dwindled.

3. The public-private joint venture model

- Public sector has an influential or controlling stake in SPV set up to hold either a management-investment contract or a development rights contract for new facilities. These contracts otherwise operate broadly, although the existence of a large public sector stake in the SPV has a significant effect on the detailed provisions of the contract.

PPP model in Lagos (and Nigerian) ports

- ✓ All the agreements related to Lagos ports have the title of lease agreements
- ✓ Management/investment model for existing public assets
- ✓ Follow similar lease structure, e.g. no management contract or leasehold arrangements
- ✓ Copy/paste arrangements with little differentiation as to different assets leased and types of operations
- ✓ Appear to be regulated under procurement laws rather than PPP laws

Activities

Most port PPPs impose strict limits on what private operators are allowed to do, usually in terms of the types of cargo they are allowed to handle. Two other common limitations on PPP activities are the separation of cargo handling from marine services, and the design of PPPs on a terminal rather than a whole port basis.

In Lagos ports, there are deviations on the above in that there is no clear indication on what basis port activities have been disaggregated for the purpose of lease contracts:

- Submitted lease agreements were signed in the period of 2005-06 which suggests that they are generally associated with the port reform programme involving the institutional restructuring of NPA.
- Separation of port activities appears not to follow cargo handling specialisation principle nor the objective of economies of scale, e.g. Apapa bulk terminals A and B and Tin Can Island terminals C and D
- Same applies to the segregation between marine and cargo handling services because it appears that the former is still under the management of NPA. There may be valid reasons to keep such services under the ownership and management of the landlord authority but those can still be safeguarded under an appropriate PPP and concession framework.

Duration-

Lease agreement can be categorised into those with short-term duration (5-10 years) and those for medium-term duration (up to 25 years).

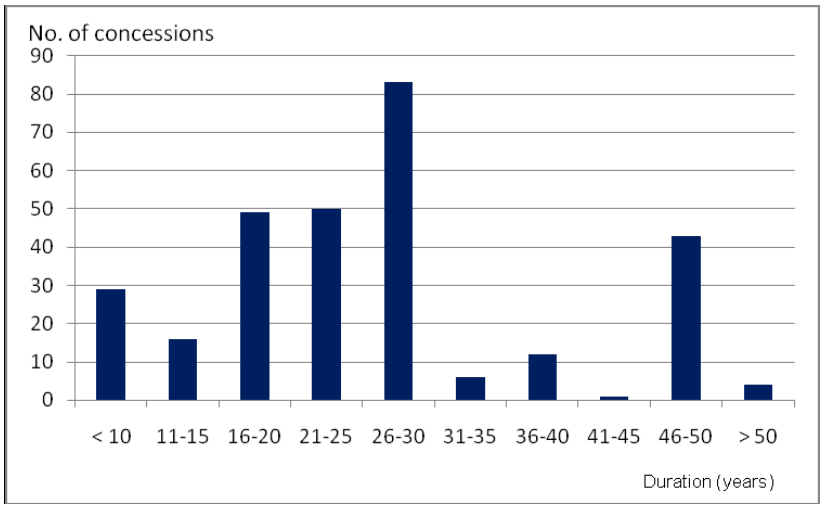
For the former, this may be due to the way the ports industry developed in Nigeria with a high reliance on expatriate management contractors or it may simply reflect the continued use of the asset leasing model. For the latter, the 25-year lease contract is surprisingly uniform across all other terminals regardless of their location, specialisation, technical life and asset depreciation. This is probably because the country at the time of signature seemed to have settled on preferred contract durations fundamentals (copy-cat concessioning) and then apply them to all port projects, irrespective of their economic.

Short-term leases of public port assets of up to 10-15 years, tend to be concentrated amongst small, slow growing sub-sectors of ports which are experiencing limited technological change, e.g. general cargo berths or dedicated berths for the exclusive use of a single shipping line. Neither principle seem to apply for port leases in Lagos ports, thus leading us to believe that port ownership and financing models in Lagos (and Nigeria) is still unclear and fragmented.

Our analysis of Lagos port lease agreements show that (i) the correlation between investment and contract duration is low ($r2 = 0.27$) when based on individual terminals rather than size bands and (ii) there is little economic correlation between size of investment and contract duration, and his may be also linked to the event-triggered and discretionary nature of Lagos ports' investment requirements.

Contract- duration

Duration of Container Terminal Concessions (US$m)
-data from 196 terminal concessions-



Duration- other issues to consider

• **Asymmetric risk**
Port authorities generally add a few extra years onto the concession period to reduce the risk from the private partner requesting a major restructuring of the agreement part way through or from no bidders turning up in case of a new concession.

• **Recovery of "soft" investments in marketing, training, IT systems etc.**

• **Continuity of employment**
Short duration PPPs create uncertainty for the workforce, while longer PPPs provide incentives for operators to invest in the workforce and offer continuity of employment.

• **Transaction costs.**
Private operators' bidding costs can easily reach US$ 1.0m even for simple concessions, and the port authority's costs, which are less obvious, may be a lot higher.

• **Government interference**
Short concessions increase the scope for government interference, e.g. changes of policy or changes in the terms and conditions of the PPP contracts in contract renewal

Investment - requirements

Private investment requirements under PPP contracts may be either:

- Obligatory : clearly specified, with an agreed time schedule,
- Event-triggered: requirement to increase capacity depending on utilisation level,
- Indicative: broad programme agreed in advance but changes as the PPP progresses,
- Discretionary: left to the private operator to decide when investment is necessary.

Lagos ports seem to deviate from the norm as most investment requirements are either event-triggered or discretionary . This is not necessarily the best option.

Obligatory investments are most common in competitively-tendered PPP projects in countries which have problems with corruption, as pre-specifying the investment schedule increases the transparency of the bid evaluation process. It also makes the investment programme legally enforceable.

Sometimes, obligatory investments lasting over 10-15 years may be rapidly overtaken by technological and market changes, but most port leases in Lagos are not long-term.

Performance requirements

- Port authorities generally support the view that PPP agreements should include legally enforceable performance targets, even though it is difficult to define meaningful targets which fully capture customers' requirements.
- Some key customer requirements (flexibility, early notice, document processing) are difficult to quantify or affected by factors outside of the terminal operator's control.
- Hence the inclusion of bland productivity targets in port PPPs, e.g. gross or net handling rates, but those are fairly easy to achieve and have been declining.
- Some key performance requirements have been increasing in importance, however: minimum guaranteed throughputs, cargo dwell time, and environmental targets linked to greenhouse gas emissions.

In Lagos ports, performance requirements are possibly the most contentious issue in lease agreements design and implementation. Performance requirements are:

(i) minimum guaranteed throughput but our analysis suggests that this is not justified by a robust traffic forecasting and performance model and/or

(ii) minimum duration of free yard storage but such duration is not justified by a capacity threshold or congestion targets.

Tariffs

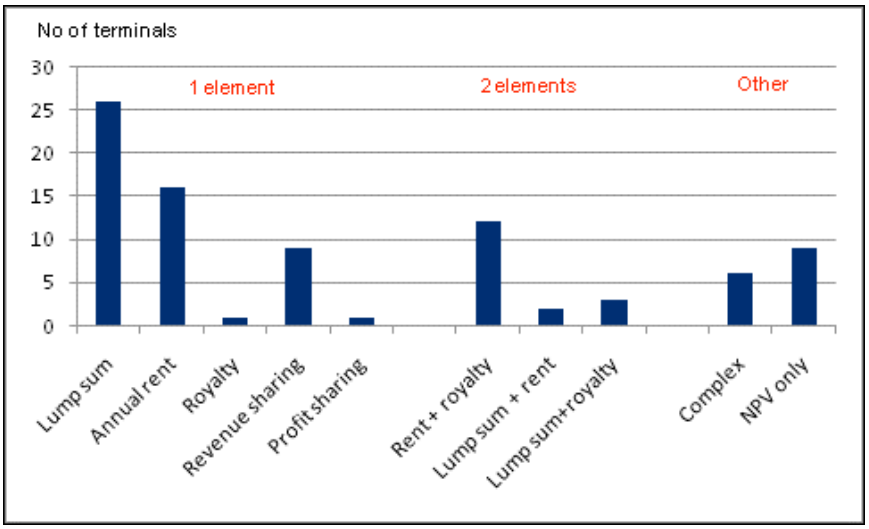
- There is a fundamental distinction between PPPs which are free to set their own tariffs, and those whose tariffs are regulated, either by a formula within the PPP agreement or by the port authority (contract regulation) or an independent regulator (economic regulation).
- Tariff regulation in ports usually takes the form of tariff ceilings which are not to be exceeded for individual shipments or –rarely– in aggregate. This reflects the political hope that over time tariffs will draft downwards below the ceiling in response to competition from other ports.
- The main cause of any downward drift below the tariff ceiling is customer discrimination i.e. the offering of discounts to customers who have the option of going somewhere else.

Looking at the Lagos ports lease agreements, they appear to have a mix or regulated and unregulated tariffs although there is suggestion of tariff ceilings in some lease agreements.

Further clarification from the NPA and terminal operators is needed to understand the real level and structure of those tariffs.

What's more, Nigeria has no independent port (or competition) regulator in charge of tariff regulation, among others, and as such one can only assume that tariffs are regulated by contract by or through NPA which may create a conflict of interest.

Concession fees



Concession fees- Lagos ports

In Lagos ports, lease agreements are a mixture between lump sum money, annual rent and revenue sharing, and NPV calculations. There are lots of questions to be answered on how and why such fees have been selected and designed, how their collection and revision is being implemented in practice, and the potential of any market failure and conflict of interest. Those issues and others will be discussed in detail during our planned meetings with BPE, the procurement manager of NPA as well as terminal operators and other stakeholders.

What is clear at this stage is that the size of the concession fee offered is the most important single criterion for selecting the private sector partner in Lagos ports. The port authority and/or Government seem to use the lease agreement to capture for itself some of the 'economic rent' associated with terminal concessions This may not be the right answer to the congestion problems and inefficiency of the port system, and lessons must be learnt from other countries, most recently Brazil, where other operational and economic criteria are highly weighted compared to the financial contribution from the private partner.

Recommendations –short term

- Review (if possible) concession performance requirements,:
  - Introduce more meaningful congestion targets, e.g. container dwell time
  - Reduce free yard storage targets
  - Establish /reduce gate cut-off times
  - Introduce penalties, on both operators and consignees, if container stays longer in terminal
  - Establish terminal capacity and utilisation and link it to performance targets
  - Move away from discretionary or event-triggered investment requirements to obligatory or indicative investment types
  - Link concession fees with performance targets
- Mid-term audit (short-term study) of PPP concessions
- Establish PPP management teams at NPA
- Clarify the relationships between NPA, BPE, and Infrastructure Bureau

Recommendations –long term

- Establish appropriate PPP framework
- Link port PPP investments with economic and social development
- Link PPP port structure with PPP reform
- Move away from short-term lease to long-term BOT and SPV types structures
- Structure PPP port projects which also include intermodal investments
- Establish a proper framework for port development and capacity improvement

Analysis of port performance in Lagos

Dr. Khalid Bichou

Content

1. Scope and Purpose

2. Methodology

3. Results

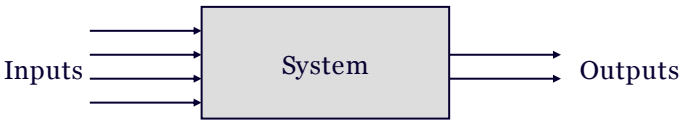
4. Conclusions and Recommendations

Scope and Purpose

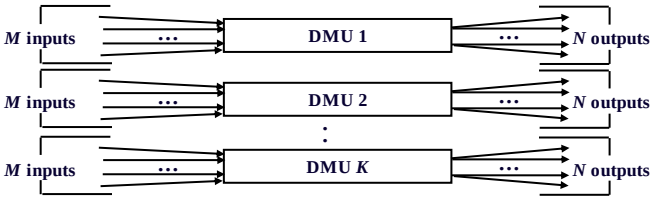
- Measure and benchmark the efficiency of Lagos ports using data envelopment analysis (DEA)
- Analysis based on the physical inputs that a port uses to produce a single or multiple outputs.
- In general, a port that produces a high level of output relative to its basic inputs will appear technically efficient, and vice versa.
- The analysis ignored indicators related to financial performance due to the unavailability of cost and price data. We also excluded information about port labour due to the unavailability of data.
- However, the approach adopted by the Consultant does capture some operational labour requirements, reducing the need to include labour parameters in the operational benchmarking model.
- Two main port units in Lagos (bulk, container and general cargo) are compared with seven other regional and international comparator ports/terminals handling similar traffic (Tema, Cotonou, Abidjan, Lome, Felixstowe, Rotterdam, and Hamburg).
- The data, compiled from primary (port visits, port websites, annual reports) and secondary (e.g. *Containerisation International Yearbook*) sources, relate to 15 indicators or variables over the 2008-2011 period. The choice of a relatively short period of four years is justified by data availability, as it should enable an accurate measurement of recent port efficiency.

DEA- Background

- Method to estimate relative efficiency of decision making units (DMUs)
- Originally suggested by Charnes, Cooper and Rhode (1978)
- It can be applied to analyze multiple outputs and multiple inputs without pre-assigned weights (unlike TFP)
- Relative efficiency is calculated with observed data and no knowledge of the cost/production function or imposition of a functional form (unlike SFA)
- Decision makers' preferences can be incorporated into the model



Mathematically - DEA



$$(FP_k)Max \qquad U_k = \frac{\sum_{n=1}^{N} a_n y_{nk}}{\sum_{m=1}^{M} b_m x_{mk}}$$

(Virtual Output)

(Virtual input)

Controllable vs. non-controllable factors

Controllable Factors	Uncontrollable Factors
• Service and port time / vessel queuing & waiting • Dedicated / priority berthing arrangements • Capacity development and expansion • Terminal layout and configuration • Terminal procedures (including safety & security) • Working hours, shifts and labour arrangements • Handling and storage charges • Type, size and maintenance of equipment • Routing and stacking of containers • Equipment allocation/ vehicle deployment • Berth and yard management systems • ICT and management supporting systems • Customer service / quality of services provided	•Tidal and weather restrictions • Trade pattern, traffic type and mix • Vessel size and type • Pattern and frequency of shipping and inland transport services • Pattern of arrivals of vessels, trucks and trains • Stowage plan and pattern • Container status, type, and dimensions • Landside logistics patterns and arrangements • Customs and trade related procedures • Environmental, safety and security regulations • Other regulatory requirements

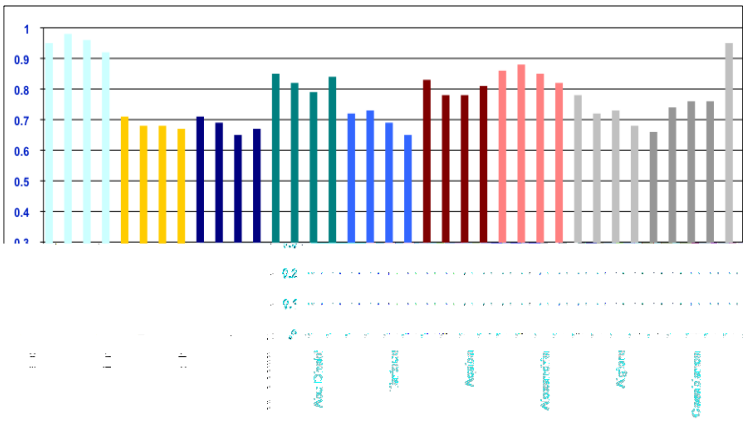
Variables

Variables	Descriptions
Inputs	
Vessel calls	Number of called vessels (per type) * Gross registered tonnage
Total area	Total port or terminal area (per traffic) in square meters
Quay length	Total port or terminal quay length per category of traffic (all berths) in meters
Berth indicator	Number of berths * Maximum draft in meters
Quay crane index	For container terminals [(Gauge + Outreach + Lift Height) * Capacity * Cranes]/100 For bulk and break bulk terminals (Capacity * Number of cranes)/100
Straddle carrier	Number of straddle carriers (for container terminals only)
Yard cranes	Number of RTG and RMG cranes (for container terminals only)
Crane stackers	Number of reach stackers, front-end loaders, fork lift trucks, etc
Vehicles	Number of trucks and vehicles
Trailers and chassis	Number of trailers and chassis
Outputs	
Total throughput	Total throughput in tons, TEUs, Pax, or vehicle
Inbound	Inbound throughput in tons or TEUs
Outbound	Outbound throughput in tons or TEUs
Empty	Empty container throughput in TEUs
Full	Full container throughput in TEUs

Results and analysis – Container operations

Decision-making unit	Efficiency	RTS	Benchmarks*
Abidjan 2008	0.68000	Constant	0.844
Abidjan 2009	0.66195	Decreasing	0.974
Abidjan 2010	0.68000	Constant	0.823
Abidjan 2011	0.61744	Decreasing	0.936
Lome 2008	0.58852	Constant	0.794
Lome 2009	0.49979	Constant	0.500
Lome 2010	0.70000	Increasing	0.794
Lome 2011	0.70000	Constant	0.794
Tema 2008	0.68	Decreasing	0.84
Tema 2009	0.69	Increasing	0.97
Tema 2010	0.68	Constant	0.823
Tema 2011	0.67	Decreasing	0.936
Lagos 2008	0.54129	Decreasing	0.695
Lagos 2009	0.50702	Decreasing	0.507
Lagos 2010	0.48082	Decreasing	0.570
Lagos 2011	0.41559	Decreasing	0.555
Cotonou 2008	0.68000	Constant	0.760
Cotonou 2009	0.63665	Decreasing	0.688
Cotonou 2010	0.59473	Decreasing	0.688
Cotonou 2011	0.54296	Decreasing	0.628

Results and analysis – Bulk operations



Results and analysis- Container operations

- No container port in the region is achieving an efficiency score above 0.7 (70percent)
- Cotonou and Tema show declining efficiency over time.
- Lagos ports, in general, depict lower efficiency than its regional counterparts
- Lagos exhibits consistently decreasing efficiency in terms of total throughput, indicating there is shortage of capacity
- Lagos exhibits a good performance in gate operations with high truck turnaround times, indicating that sources of congestion may be outside the terminal
- Unlike in other countries, segmentation by container mix and status in Lagos does not appear to have an overall impact on efficiency scores.
- In the short and medium run, productivity could be increased by modernising port infrastructure and use of automated systems.

Results and analysis- Bulk operations

The model developed to analyse bulk operations is based on a sample of 8 ports/terminals, 48 decision-making units in total.

When compared with their regional counterparts, Lagos ports bulk facilities perform better (above average) in terms of operational efficiency, particularly in the dry bulk category, and the general trend of increasing efficiency should be noted.

Figure above shows Abidjan (again) to be the most efficient port in the sample, followed by Tema. Below the 70% bar, a second-tier of ports is comprised of Lagos. The last tier (< 60%) comprises the poor ranking ports of Lome and Cotonou.

Several factors may explain this ranking ranging from uncontrollable factors such as the type of bulk cargo and ships both ports handle to controllable factors such as poor technical efficiency and/ or low level of automation.

In the case of Lagos, the above average performance in bulk operations is mostly due to the vertical integration of shippers importing/operating bulk commodities, as oppose to container operations which are very fragmented in Nigeria.

Recommendations

- Establish port performance review (yardstick benchmarking)
- Move freight stations outside terminal (may be still in the port)
- Introduce truck appointment system
- Encourage (otherwise penalise) truck night deliveries
- Establish dry ports / ICDs outside terminals and port
- Develop dedicated freight routes (new or existing)
- Reduce free yard storage time
- Introduce congestion pricing for container storage
- Establish and validate terminal and port operating procedures
- Restructure truck operating services
- Disaggregate terminal congestion from port congestion
- Disaggregate terminal procedures from customs procedures

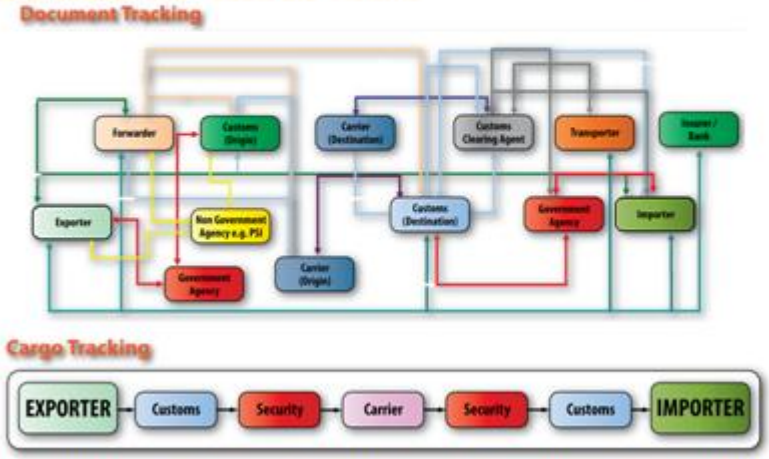
Recommendations

- Establish port performance review (yardstick benchmarking)
- Move freight stations outside terminal (may be still in the port)
- Introduce truck appointment system
- Encourage (otherwise penalise) truck night deliveries
- Establish dry ports / ICDs outside terminals and port
- Develop dedicated freight routes (new or existing)
- Reduce free yard storage time
- Introduce congestion pricing for container storage
- Establish and validate terminal and port operating procedures
- Restructure truck operating services
- Disaggregate terminal congestion from port congestion
- Disaggregate terminal procedures from customs procedures

Trade Facilitation Issues Affecting Lagos Ports

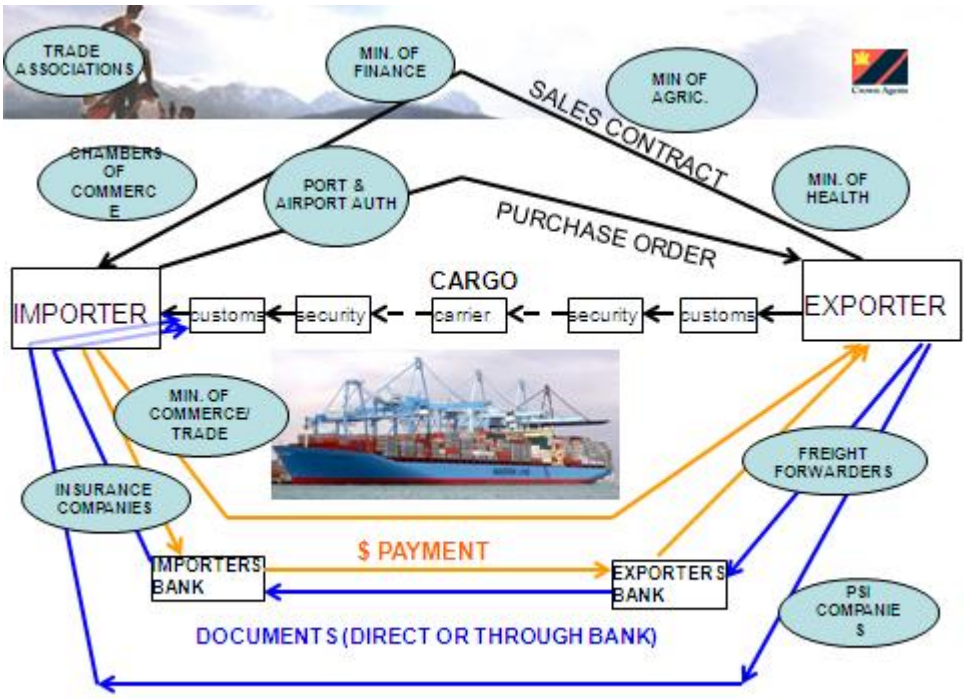
Jon Walden MBE FIEx FIFP
Senior Adviser, Customs & Trade Facilitation
Crown Agents

The current international trade environment involves complex international trade processes with disparate systems



Each international trade transaction requires an average of 40 documents of 200 data elements, with 15% repeated at least 30 times and 60-70% repeated more than once. (UNCTAD)

Facilitation of International Supply Chain
(Reference Model)



International trade is risky!

Additional costs due to delay……

- Dar Es Salaam - $10 per TEU per day
- Mombasa - $12 per TEU per day
- Maputo - $5 per TEU per day
- Lagos - $30 per TEU per day

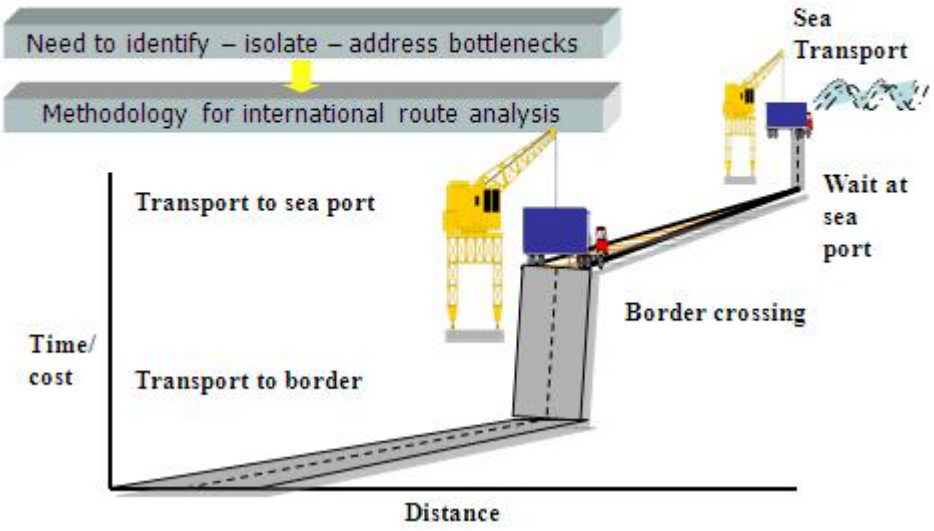
Plus

- Quay rent
- Loss in integrity of cargoes
- Loss of marketability

UNESCAP Time/Cost-Distance Model

Need to identify – isolate – address bottlenecks

Methodology for international route analysis



Lagos Ports - Trade Facilitation Issues Identified.....

- Lack of streamlined procedures / processes - inconsistency and too many agencies
- Reliance on multiple paper documents / human input
- Infrastructure / congestion / intermodal issues / ICDs
- Lack of trading capacity / experience
- Customs delays / DI / Scanning issues / Asycuda
- Bureaucracy and fraud
- High freight forwarding cost
- Phyto-sanitary requirements
- Lack of intermodal connectivity (eg rail to Kano ICD?)

Example: The holistic approach……..

Q. How do you solve congestion at Lagos Ports?

A. It is complex but the first step must be to streamline the Form M Foreign Exchange application system

WHY?!

Example: Are we ready for paperless trade and / or a Single Window environment!

- Incoterms (2010 Revision recognises 'electronic documents where appropriate or agreed between the parties')
- eUCP
- IATA e-Airwaybill initiative
- Datafeight receipts
- e- Certificates of origin

Remember the 'email revolution'

Remember the airline 'e-ticket revolution'

Positive change does happen

In ports and terminals

Tema port processing time

2008: 10.7 days
2010: 6.9 days

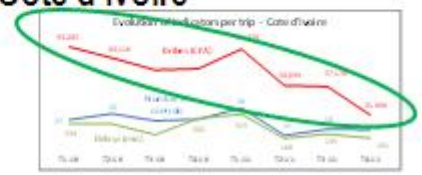
Ouagarinter processing time:

2008: 6.0 days
2010: 2.4 days

Road governance – reduction in bribes

Togo

Côte d'Ivoire



Recommendations

- Public / private sector port stakeholders group
- Accelerate Single Window initiative, PCBS
- Study into use / misuse / non use of ICDs
- Streamline processes and procedures from Form M stage onwards for imports
- Fast track for export cargoes / AEO
- Ratify Rotterdam Rules - migrate to non-negotiable waybills
- Reward trader compliance
- Encourage capacity of freight forwarders / professionalism
- Expedite intermodal / rail connectivity

TRANS AFRICAN CORRIDORS

15

Crown Agents
Customs and Trade Facilitation

THANK YOU

www.crownagents.com/customs

jon.walden@crownagents.co.uk

8. Appendix 2: DEA methodology

The frontier concept in this context denotes the lower or upper limit to efficiency with respect to the inputs consumed and outputs produced by a Decision Making Unit (DMU). Under this approach, a DMU is defined as efficient when it operates on the frontier and inefficient when it operates away from it (below it for a production frontier and above it for a cost frontier). Early attempts to construct a frontier used ordinary least squares (OLS) regression techniques to fit a function (often a cost or production function), which is then shifted to become a frontier. Stochastic Frontier Analysis (SFA) is a more sophisticated version of this approach. The objective is to construct a non-observable frontier from a set of best obtainable positions. The method used to identify the frontier may be parametric (econometric) or non-parametric (linear programming). Unlike econometric (parametric) models, non-parametric approaches do not require a pre-defined function but use linear programming techniques to determine a frontier. Techniques belonging to the non-parametric approach include Data Envelopment Analysis (DEA) and the Free Disposal Hull (FDH). These techniques can handle multiple outputs and multiple inputs. However, non-parametric methods make no allowance for observational error. Where observational error is a feature, SFA may be used, provided there is only one output.

The rationale behind DEA is that in seeking to solve the issue of DMUs (Decision Making Units, e.g. metros) assigning different weights to their respective inputs and outputs, each DMU is allowed to set a combination of weights that puts it in the most favourable position vis-à-vis others. The method works by solving a series of linear programming problems and selecting the optimal solution that maximises the efficiency ratio of weighted output to weighted input for each DMU. The efficiency frontier is therefore constructed from the envelope of these linear combinations.

Assuming a set of *K* DMUs (*k*=1,…,*K*) in the sample, each with *M* inputs (*j*=1,…,*M*) and *N* outputs inputs (*i*=1,…,*N*). The efficiency ratio of the DMU k can be defined as the ratio of its weighted sum of outputs over its weighted sum of inputs:

$$E_k = \frac{u_1 y_{1k} + u_2 y_{2k} + \ldots}{v_1 x_{1k} + v_2 x_{2k} + ..} = \frac{\sum_{i=1}^{N} u_i y_{ik}}{\sum_{j=1}^{M} v_j x_{jk}} \qquad (1)$$

where x_{jk} and y_{ik} are the amounts of j^{th} input and i^{th} output consumed and produced by DMU k, respectively. u and v correspond to (*M* x 1) and (*N* x 1) vectors of input and output weights, respectively.

The DEA formulation starts with specifying a mathematical problem that maximises the efficiency of DMU *k* subject to the efficiency of all other DMUs being less than or equal to 1. The weights are the variables of this problem and the solution gives the most favourable weights and an efficiency score for each DMU.

$$\begin{aligned} &Max_{u,v} \quad u'y_k / v'x_k \\ &st \quad u'y_k / v'x_k \le 1, \quad k = 1, 2, \ldots, K \qquad (2) \\ &\quad u, v \ge 0 \end{aligned}$$

The problem with the fractional formulation in (2) is that it has an infinite number of solutions. To avoid this, the constraint $v'x_k = 1$ is imposed, which provides (3) which is a linear programming (LP) problem.

$$
\begin{aligned}
&Max_{\mu,\upsilon} \quad \mu' y_k \\
&st \quad v' x_k = 1 \\
&st \quad \mu' y_k - v' x_k \le 0 \quad k = 1, 2, ..., K \\
&\quad \mu, v \ge 0
\end{aligned}
\tag{3}
$$

Each DMU selects input and output weights that maximize its efficiency score and the problem is run *K* times to identify the relative efficiency scores of all DMUs. The formulation in (3) is known as DEA-CCR (due to Charnes, Cooper, Rhodes) for constant returns to scale (CRS). The dual of (3) is (4) where θ is a dual variable referring to the unity constraint in (3) while λ is a *K*x1 vector of dual variables relating to the second set of constraints in (3).

$$
\begin{aligned}
&Min_{\theta,\lambda} \theta \\
&st \quad - y_i + Y\lambda \ge 0 \\
&\quad \theta x_j - X\lambda \ge 0 \\
&\quad \lambda_1 ..., \lambda_k \ge 0
\end{aligned}
\tag{4}
$$

An additional constraint, shown in (5), leads to the DEA-BCC (due to Banker, Charnes, Cooper) model, which allows for variable returns to scale (VRS).

$$
\begin{aligned}
&Min_{\theta,\lambda} \theta \\
&st \quad - y_i + Y\lambda \ge 0 \\
&\quad \theta x_j - X\lambda \ge 0 \\
&\quad \lambda_1 ..., \lambda_k \ge 0 \\
&\quad N1'\lambda \le 1
\end{aligned}
\tag{5}
$$

where *N*1 is a *N*x1 vector of 1.

The models in equations (4) and (5) are output-oriented. Input-oriented models can be formulated in the same way using duality in linear programming. The choice of orientation depends on the objective of the benchmarking exercise (input conservation versus output augmentation), and on the extent to which inputs and outputs are controllable. Both models should estimate exactly the same frontier, with the same set of DMUs being identified as efficient under either model. However, efficiency scores of inefficient DMUs may differ under VRS.

In the simple scenario of a single-input and a single-output, Figure 1 illustrates DEA models and efficiencies under different orientations and scale technologies. The DEA frontier consists of a convex hull of intersecting planes which envelops the efficient data points A, B, C, D and E. Note that only units B and C are efficient under both CRS and VRS, which confirms that DEA-CRS is more restrictive than DEA-VRS. For the inefficient DMU K, the projection towards the CRS frontier (the straight line) makes point K_C the new target, while points K_{Vi}, $K_{Vo,}$ and K_A are the VRS targets for the input, output and additive orientations respectively. Unlike the CCR or BCC model the additive model is un-oriented, i.e. it does not differentiate between input or output orientation which means that a reduction of input with a synchronous enhancement of outputs is possible.

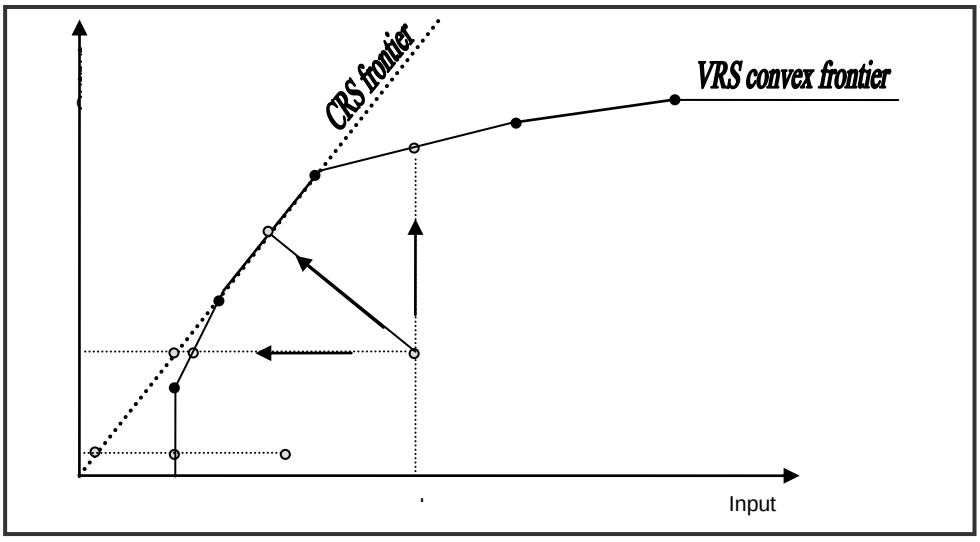


Figure 1: DEA production frontier under a single-input/ single-output scenario

Another way of illustrating DEA input and output orientations is by analysing production sets of either two inputs (x_1, x_2) and one output (y) for the input-oriented model, or one input (x) and two outputs (y_1, y_2) for the output-oriented model. Figure 2 depicts TE and AE measures in both orientations.

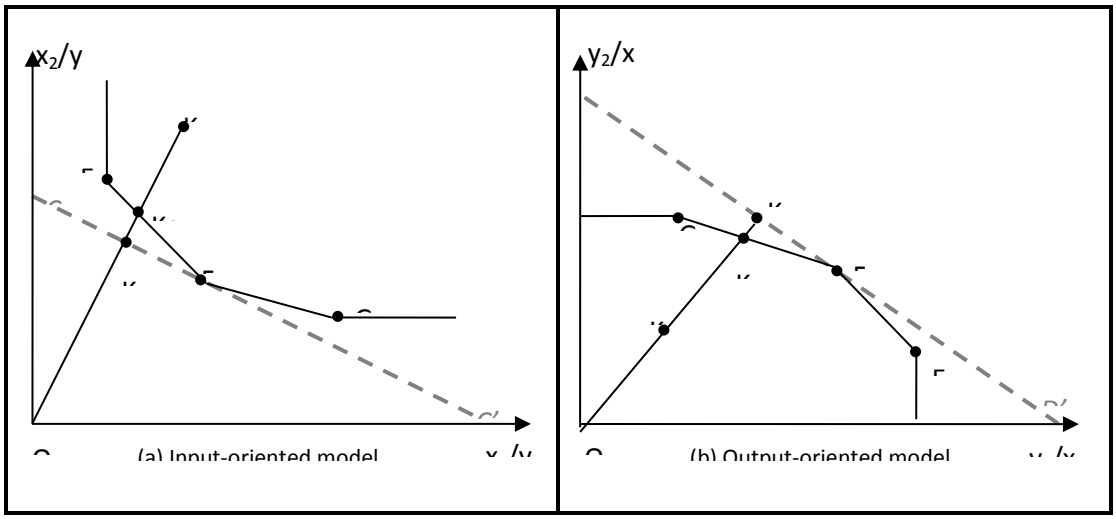


Figure 2: Illustration of DEA models, excluding the effect of technological change.

When cost and price information are available, one can draw the iso-cost line CC' (combination of x_1 and x_2 giving rise to the same level of cost expenditure) for the input-oriented model and the iso-revenue line DD' (combination of y_1 and y_2 giving rise to the same level of revenue) for the output-oriented model. Allocative efficiencies for input (AE_i) and output (AE_o) orientations can therefore be calculated, corresponding in our example to the ratios OK_b/OK and OK/OK_b, respectively. The overall economic efficiency (EE) can be measured as the product of TE and AE in each model. Finally, note that the reference set or peers for the inefficient DMU K are E and F in the input-oriented model, and F and G in the output-oriented model.

On the other hand, DEA has also a number of drawbacks. In particular, DEA does not allow for stochastic factors and measurement errors, although a second stage analysis or a stochastic parameterisation 'can' solve this. Most economists, however, still stress the need of a stochastic based distance function, namely SFA, to complete DEA and vice versa. Other issues regarding DEA are, in our view, more related to the definition and interpretation of the parametres, variables and models selected rather than to the analytical attributes of the technique. In the next section, we justify variable selection and orientation and outline the number of DEA models to be run in this study.

9. Appendix 3: Concessions and PPPs in Ports

The notes from this Before considering in more detail the available port restructuring instruments that in view of the above stated policy and legal context could be of relevance to the Nigerian ports it is necessary, in order to avoid unnecessary confusion and disagreement, to clearly review all the potential modalities and instruments that can be used to carry through a port reform process. This review should ultimately allow the selection of those that, within the framework set by a relevant ports policy, are most relevant and pertinent. It is also useful to define in this review, as succinctly and accurately as possible, the appropriate or acceptable legal statutes and corporate capacities of the private entities that in future could be entrusted with operations in Nigerian ports.

Figure 1
Alternative options for port restructuring

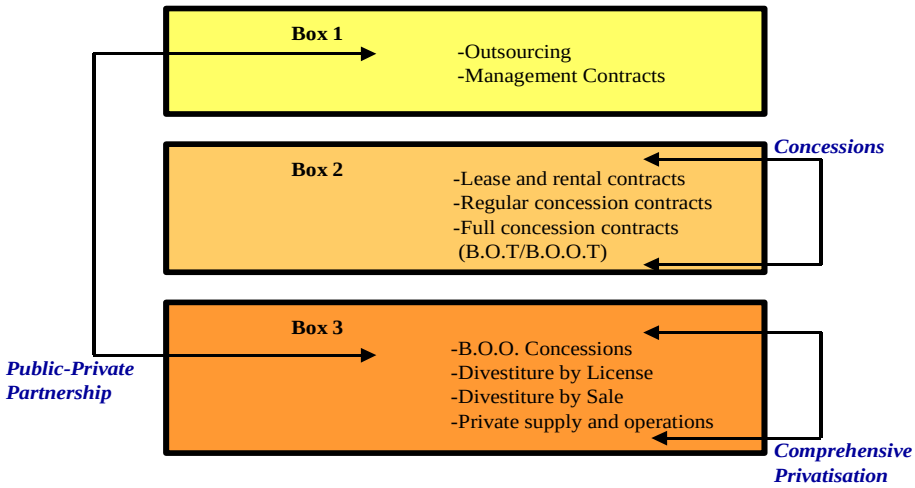


Figure 1 presents all possible options for port reform and re-structuring that theoretically can be considered. A clear distinction is made between three main groups: Public-Private Partnerships, Concessions and Comprehensive Privatisation. Even before detailing the scope and implications of each of the possible reform tools presented in Figure 1, it is possible to conclude that although all of the instruments confer an operational role to the private sector, only those grouped in Box 3 offer comprehensive privatisation. This signifies that these instruments allow for the transfer of port sector responsibilities to the private sector that are considered, to all intents and purposes, to belong to the public domain such as the ownership of port land, long-term master planning and ultimate ownership of infrastructures and superstructures. The instruments in Box 1 on the other hand allow only for the temporary transfer of operational functions whilst the instruments in Box 2 not only mandate private sector companies to take over the operational functions but allow to varying degrees for substantial private sector investment.

In technical port management literature, the issue of port restructuring is further complicated by the confusing references to various modalities for achieving port reform. These modalities are not concerned with the question of public or private management, operation and funding as such, but rather address in priority the issue of how to make port management and operations more effective and efficient. Admittedly for some modalities this then raises inevitably the question whether less or more private involvement is preferable and what are the best alternative instruments for achieving port sector reform once the preferred level of private sector involvement has been decided.
Instruments for introducing greater private sector involvement in the operation of ports encompass widely varying contract-based formulae: outsourcing or contracting out, management contracts, lease and rental, regular concessions and B.O.T. and B.O.O.T type concessions.

Outsourcing or contracting out

Outsourcing or contracting out to the private sector covers contractual agreements that transfer certain functions, activities and or services that were previously executed by the public port authority or public port management entity. The outsourcing or contracting out option offers ample scope for competitive bidding and thus enhances competition for the market. It is an option often chosen to reduce the cost of undertaking the transferred functions, activities or services. One can consider the practice of outsourcing as a commencement or starting phase of the transfer of certain non-core activities from the public to the private sector, albeit a limited transfer in scope and duration. Outsourcing does not rule out the risk that potential bidders may collude when bidding for a contract, thereby keeping the offered prices at a high level. A monopoly may also be created if the number of potential bidders is limited, the required function, activity or service is of a highly technical nature and no proper economic regulatory oversight exists. Outsourcing in ports has been and is frequently used for maintenance dredging, equipment maintenance, mooring and unmooring operations, etc.

Management Contract

In an effort to make their ports more performing, governments have offered specialised port management companies specific contracts for the management of an entire port or for individual terminals. The usual procedure is for government (or its specialised port agency such as the Port Authority) to agree on a management contract with an experienced private sector operator (often one enjoying an international reputation for efficiency and port sector know-how). The operating budget is proposed by the contractor and approved by the Government or the Port Authority. The port users pay fees and charges to the Port Authority. The contractor receives a fee from the Government or the Port Authority based on his inputs and sometimes also on his performance (efficiency incentives). The port operator agrees to employ the existing port or terminal staff, but is still likely to bring in a small core group of expatriate managers. The contract is entered in for a specified period of time, typically between one and three years.

The signing of a management contract is usually the outcome of a prolonged period of poor performance and or of limited responsiveness of the public operator to the market, attributed to weak and inadequate management. Often Governments and Port Authorities consider a management contract as a first move towards the granting of more extensive operational responsibilities to private sector companies.

Management contracts may look attractive to Governments and Port Authorities because in theory they offer the possibility to bring in skills and know-how not available in the country, without sacrificing any of the public sector's powers. In practice they have often failed to produce the expected results because:

- The obligation put on the management company to employ existing port staff in most cases saddles the former with excess labour and inflates the labour costs and thus the operational costs. In a highly competitive market this is an unsustainable situation which is bound to substantially inflate the management fee or stop the contract altogether.
- It is difficult if not impossible to designate the responsible party if and when the contractually specified minimum levels of production, productivity and service quality are not met. This is due to the fact that neither the principal (the Government or the Port Authority) nor the management company can be solely and fully held accountable. Hence, no blame is generally handed out. This only means that tension between the two parties is likely to persist and the relationship, instead of being one of harmonious cooperation, further deteriorates.

The rather high level of failure of management contracts for port operating entities has made port management companies very disillusioned and weary. In fact, they stand to lose a lot (in reputation and in financial terms) if things go wrong whilst their potential gains are rather limited because the management fee is mainly based on their restricted input in manpower and a degree of knowledge transfer. Not surprisingly the appetite of port management companies for this type of arrangement has significantly dropped and consequently Governments and Port Authorities find it increasingly difficult to generate interest when tendering management contracts for port facilities.

Concessions

The term 'concession' refers to a legal instrument that allows the realignment of public and private sector roles. Although numerous meanings have been given to the term, a concession is in its generic sense an agreement between a public authority an a private entity for the provision of public services on publicly owned land. In general terms a concession is thus a contract by which a government (or its port agency) transfers for a pre-determined period of time the operating rights on land in the public port domain to a private or mixed company, which then engages in an activity contingent on government approval and is subject to the terms of a concession contract. Concession contracts may include the rehabilitation of infrastructures and superstructures or the supply of port handling equipment by the concessionaire. The framework in which the legal instrument of the concession operates is one defined by the Government or Port Authority acting as land developer and regulator whilst private companies assume the responsibility for port operations. In practice three types of concession contracts meet these characteristics and therefore deserve the label of 'concession'. These are the lease and rent contracts, the 'regular concession contract' (i.e. without major related investments in infrastructures or superstructures) and the B.O.T. and B.O.O.T. type concession contracts (implying major capital private capital lay-outs in infra-and superstructures). The fundamental common denominator of these forms of concession contract is that the ownership of the infrastructures and of most of the superstructures ultimately remains with the Government or its Port Agency.

Lease and rental contracts

Lease and rental contracts are a frequently used instrument to transfer operations from the public to the private sector and may result in part privatisation on a temporary basis. The contract between the Government (or the Port Authority) covers the leasing or renting out of port land (including or excluding as may be the case quay walls or berth access), terminal operating areas and or storage/warehousing facilities located in the port estate to a third party, mostly a private company. If the berths are excluded from the lease the Port Authority collects and keeps all revenues from berthing fees and berth occupancy. Essential clauses in a lease or rental contract concern the payment of rental. This can be calculated on a flat rate, a mini-max or a shared revenue basis. Leases and rentals can be signed for single or multi-user facilities. Potential lease partners are private or mixed terminal operating companies, shipping lines, forwarding agents, third party logistics providers and inland transport operators. In leases and rentals there is no obligation to incorporate commitments with respect to the provision of a public service or the non-discriminatory treatment of the lessee's customers. But if the lease or rental contract provides for these clauses then it could fall within the broader category of concessionary contracts. In recent years lessees have frequently been investing heavily in superstructures and equipment, but only if the duration of the lease contract is sufficient to guarantee a reasonable return within the agreed lease period. Typically leasehold agreements on specialised terminals may cover periods of 20 or 25 years and often have a built-in renewal clause. Simple rental agreements are mostly signed for shorter periods (typically 1 to 5 years although longer is also possible) but they rarely concern fully equipped terminals.

Regular concession agreements

A regular concession agreement, i.e. one without the obligation for the concessionaire to make a major investment in port infrastructure is similar to a leasehold except that in order to qualify as concession, the agreement must meet all five major economic and legal characteristics inherent to concessioning contracts, namely:

- The concessionaire must take risk and provide finance if required
- The concessionaire must operate following the principles of 'public service'
- The concessionaire is remunerated for his services
- The return of infrastructures, superstructures and equipment to the grantor at the end of the concession period
- The concession must be contract-based

As for the lease contract, a regular concession contract can result in part privatisation for a defined period of time (i.e. the concession period). Most concession contracts have a double character, namely that of license and that of contract as well. Clauses referring to payments, duration, escalation clauses, indemnification,

insurance, protection, guarantees, loans and subsidies are part of a contract and as such cannot be modified unilaterally. The clauses relating to the performance of a public service under the concession are an element of the license and can be modified unilaterally by the grantor.

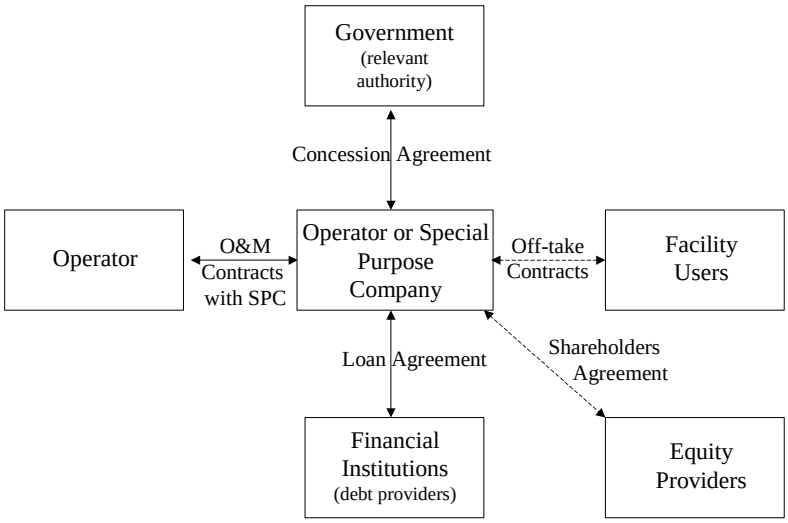
The documents that may be included in a regular concession agreement are a leasehold agreement for use of the land, a terminal access agreement with the Port Authority to ensure proper access to the facilities and a port services agreement with the Port Authority to ensure adequate provision of supporting port services such as pilotage, towage, mooring, etc. All these contracts can equally be incorporated into a single concession contract.

Regular concessions may include clauses with respect to the acquisition by the concessionaire of handling equipment in order to meet the agreed operational standards as well as clauses concerning an upgrading or extension of superstructures. The investments in equipment and superstructures can be significant (in the case of a container terminal possibly as much as 50 to 60 percent of the total terminal investment). Hence, the need for the public sector grantor to agree on fairly long concession periods. For example most concessions are signed for periods of between 20 and 25 years (similar to leasehold contracts in which the same level of funding is expected) and provide the possibility of at least one renewal. Whatever investments were or are being made by the concessionaire in a regular concession, he will never be owner of the land or of the infrastructures. Moreover, any sums invested in the superstructures will at the end of the concession period become lost if they are not fully amortised, as the property of these superstructures will be transferred to the public sector grantor. Thus the concessionaire must ensure that he can recuperate the invested sums before the end of the contract period or is paid a sum equal to the residual value of the superstructures he funded.

Most regular concessions are signed between a Port Authority and a Terminal Operating Company, although if the required private investment becomes significant, it is not impossible for a Special Purpose Vehicle to be set up to provide the necessary funds and act as concessionaire.

The concession contract structure in Figure 2 shows the main players and the key relationships between them. The regular concession agreement institutes the main relationship and is signed between an Operator or a Special Purpose Company (this can be a private or a mixed company) and the Government (or the Port Authority). The Operator kr Special Purpose Company will usually lease land from the Port Authority and then a lease contract becomes an integral part of the concession agreement. It is of the essence to stress the fact that the award of a regular concession (or of all other 'concession type' contracts for that matter) does not imply comprehensive privatisation. The concession is a legal contractual technique to create and run public services for which the Government or another public authority *temporarily* transfers all rights and duties relative to a public work on a public estate with a public service goal in mind. Hence, concessions must function by obeying the rules of public service namely: continuity, adaptability, equality and publicity.

Figure 2: Regular Concession Contract Structure

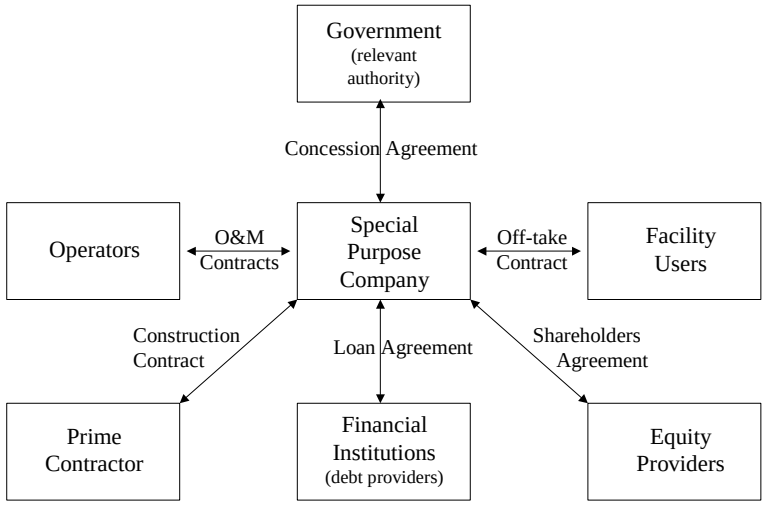


Source: based on Ballast Nedam

B.O.T. (Build, operate and transfer) and B.O.O.T. (build, own, operate and transfer) type concessions

In recent years the tendency has been for Governments and Port Authorities to reduce their financial commitments in ports and use private sources to fund new port development, including the rehabilitation of existing facilities and the construction of new infrastructure. This implies not only an increased role for the private sector in port operations but an increased financial exposure of that private sector as well. Both in B.O.T. and B.O.O.T. concessions the additional dimension added to the regular concession as described

Figure 3: BOT Contract Structure



Source: Ballast Nedam

above, is the provision and funding of infrastructure. Thus the agreement will in great detail define the B.O.T. and B.O.O.T. conditions under which the construction of the infrastructure will proceed. Figure 3 presents the principal relationships in a B.O.T. contract structure.

The main difference in contract structure compared with the regular concession contract lies in the presence of an additional party, namely the prime contractor and the relationship between this new party and the Special Purpose Company (set up by the Sponsors) based on a construction contract. Moreover, the off-take contracts will take much greater importance as will the shareholders and loan agreements. Sponsors usually form a consortium to establish the Special Purpose Company. It is often recommended to include in such consortium the Operator and the prime Contractor (construction and engineering firm). In any event, to carry through a B.O.T or B.O.O.T requires a financially strong and experienced sponsor or group of sponsors. In the ports field these have often become synonymous for 'global terminal operating companies'.

In most projects, the host Government (or its specialised port agency) will have to play a major role and it may even be called upon to provide part of the financing, either as equity, debt or standby. Particularly where developing countries and infrastructure projects are concerned the B.O.T. and B.O.O.T. approach cannot be expected to result in an exclusive private sector venture which can be realised without substantial exposure or commitment on the part of the host Government. Finally, these types of concessions also have a better chance to succeed if one of the sponsors is a well-respected private participant from the host country. In Nigeria this could be a B.E. Company.

In a B.O.T. and B.O.O.T. type concession the critical clauses, additional to those in a regular concession, concern the design, construction and completion of new infrastructure to be provided under the contract. The documents that will normally be included, apart from those already mentioned for a regular concession, are the sponsor's direct agreement, the design contract, the building contract, the financing documents and the management and operations contracts.

Under B.O.T. (build, operate, transfer) concession conditions the legal title to the newly constructed port infrastructure and sometimes to other assets, remains with the grantor, not only until the end of the concession period but indefinitely. In fact once built, the new facilities remain forever the property of the authority that assumed the role of grantor of the concession or of a superior public authority (e.g. the Government itself). The B.O.T. concessionaire normally concludes a long-term leasehold agreement with the

grantor. This conveys rights similar to holding title over the land although only for the agreed period of the concession. Nevertheless, this constitutes for him a major advantage, as it will allow him to use the facility as a corollary to loans.
With a B.O.O.T. (build, own, operate, transfer) concession the possibility exists that legal title in the land is acquired directly by the concessionaire. Thus the parties to the contract agree to have title over all assets pass to the Government at the end of the concession, but during the concession the title stays with the concessionaire. For large terminal operators this is the preferred concession contract because its conditions facilitate the granting of loans by financial institutions. The concessionaire remains indeed owner of the land and of all the infrastructure and superstructure built on the land and these can be given, without impediments, as collateral to loans.
Other variations on the same B.O.T. concession theme are the B.T.O. (build, transfer, operate) and W.B.O.T.(wraparound B.O.T) contracts. The first addresses instances in which the legislation forbids ownership by private parties over what is considered public infrastructure or part of the maritime domain. After the construction of the facilities under this type of contract the ownership is directly transferred to the Government. This arrangement is much less attractive than a B.O.T. scheme, as the 'ownership' over the constructed facilities becomes an issue for lenders and investors, especially when fixed assets are required as collateral for financing. As a matter of fact, under a B.T.O. lenders may require a Government guarantee regarding the repayment of the debt contracted by the concessionaire for the provision of the facilities. The W.B.O.T. is a combination of a B.O.T. contract with the concessioning of existing public infrastructure. Under such an arrangement the Government-owned port facilities are expanded by the private sector. But the private sector holds title only to the additional infrastructure that it builds.

Instruments that result in comprehensive privatisation
Instruments that result in comprehensive privatisation include the B.O.O. Concession, and various forms of divestiture (such as licensing and sale, M.E.B.O, M.B.O, M.B.I. or I.P.O.).

B.O.O. Concessions
With B.O.O. concessions a very different type of 'public private participation' scheme is introduced. Although the term refers to 'concession' a B.O.O. scheme (build, own, operate) implies that the developer of the new port facilities will indefinitely have title over them. Hence, this scheme results in comprehensive privatisation and as such does not, notwithstanding its name, meet the conditions of a concession agreement. B.O.O. concessions lead to full and permanent privatisation of the facilities built under the agreement. In essence a B.O.O. concession is identical to the private supply and operation of port facilities, possibly with the exception that in the latter case there will be no contract between the private owner/operator and the public authority but rather a broad Government policy that provides for such private supply and operation.

Divestiture by License and Sale

- *M.E.B.O., M.B.O. and M.B.I*

The divestiture by license and sale aim at the permanent transfer of port responsibilities and or ownership to the private sector either by means of a license or of outright sale. The latter then often leads to the sale of the port, not to a private port operating company but to the previous public management and or employees of the port. This is referred to as M.B.O (Management Buy-Out) and M.E.B.O. (Management-Employee-Buy-Out). Such group take-overs are usually funded by institutional equity and debt and with a comparatively small amount of equity subscribed by the management team itself. There is also the M.B.I. or Management Buy-In, which is the acquisition of the port by an external management team funded in the same way as a M.B.O. or M.E.B.O. In all three cases the legislative mechanisms put in place result in an irreversible sale of all of the ports assets, including the land. It ends public ownership, management and operation. M.B.O.s, M.E.B.O.s and M.B.I.s have proven to be particularly conducive to generate windfall profits for the management and or employees, as the probability is high that the port assets have initially been sold well below their true value (mostly for political reasons so as to ensure that the sale goes ahead as planned).

- *Sale of port assets through I.P.O.*

The sale of ports assets can also be achieved through an initial public offer (I.P.O.) or a public issue. Sales of port assets by this method will be carried out through a full or a partial sale of shares of a corporatised port company to the general public resulting in the business being quoted on the Stock Exchange and the shares openly traded. In this type of transaction the Government sells the shares to the general public. In practice the sale is mainly to institutional investors in large blocks, but employees and small investors may be given preferential blocks of shares. A major disadvantage of this privatisation instrument is that once the shares have been offered to the market, the Government has no further control over the ownership of these shares, or over the shareholders. The sold port company may well fall in the hands of competitors or become wholly foreign owned. Possibly even more dangerous is the situation in which the new shareholders are no longer interested in promoting the port's role as gateway for international trade but are solely motivated in realising the value of the port's real estate holdings.

Of course, if the Government decides to sell its port(s), it can do this by simply selling the assets rather than the shares in a port company. Then the sale of assets will take place by competitive tender and be open to any company or group willing to bid.

Crown Agents
St Nicholas House
St Nicholas Road
Sutton
Surrey
SM1 1EL
United Kingdom

T: +44 (0)20 8643 3311
F: +44 (0)20 8643 8232

e-mail enquiries@crownagents.co.uk
www.crownagents.com