



## Assessment of Seaports Post-concession Infrastructure Maintenance and Development in Nigeria

**Kingdom Bello**

Department of Transport Management Technology, Federal University of Technology,  
Akure, Ondo State, Nigeria

### **Abstract:**

*This paper examined the ways and manners concessionaires (terminal operators) of Nigerian seaports have over the years manage and develop port infrastructures in order to gain insights into shipping operational development in the country. The objectives are to assess the level of infrastructural developments with a view to showcase the areas that need more attention both by the terminal operators and the government. Similarly, to examine the relationship between investment by the operators and cargo throughput at the ports after it has been concessioned. Structured questionnaire was used to collect information about infrastructural developments and secondary data about yearly budgeted investment was correlated against cargo throughputs. Descriptive analysis and Pearson Product Moment Correlation techniques were used to analyse collected data. The results from the findings indicated that, though ports have improved in terms of infrastructural developments especially in the are of cargo handling equipment infrastructures, warehousing, Quay development but, there is need for improvement of rail transport infrastructure and development in shipbuilding. There is need for government to find solutions to the challenges facing the terminal operators as well.*

**Keywords:** *Seaport, post-concession, infrastructure, maintenance and development*

### **1. Introduction**

Nigeria as a country handles about 70% of all seaborne trade in the West African sub-region due to her population and economy (Five Star Ltd, 2017). However, the inefficiencies in shipping logistics necessitated the concession of Nigeria's maritime seaports terminals. In the past, vessels were delayed at berthing spaces, bureaucracies of cargo clearance made port not to be attractive, and most shipping activities were carried out manually. Therefore, it beacons on government in an attempt to finding lasting solutions to seaports' problems decided to privatize and or concession the ports in 2006 (Okeudo, 2013). Meanwhile, lack of sufficient storage capacity at Nigerian seaports' terminals due to lack of adequate land as well as the increasing level of congestion associated with cargo movement within and outside the terminals motivates different approaches to deal with the situation. According to Omoke et al (2015) citing Bousquet and Fayard (2015) that, a concession arrangement is one which the government grants the right to fund, build, own, improve, upgrade and maintain or operate a public infrastructure and charge used for the cost of services rendered for a limited period stated for the operators.

According to official website of Five Star Ltd (2017), a company that is part of concession programme narrated that; shady transactions, inadequacy of plants and equipment, pilferage, bribery and allied vices carried out by miscreants called wharf rats, by unscrupulous labour contractors who held ship masters and agents to ransom even after they have paid all official fees, and by a multiplicity of poorly coordinated federal law enforcement and security operatives were what led to the decision of government to concession Nigerian ports.

According to OECD (2008) although concessioning the seaports made it to operate like a private firm; in many cases, they pursue a mix of private and public objectives and there is considerable public sector involvement in infrastructure supply. In Nigeria, Nigerian

Ports Authority (NPA) is saddled with the responsibility of management and development of port infrastructures. It acts now as the Landlord of all Nigerian owned seaports. De Langen (2008) argues that, port authority is strongly involved in infrastructure access and operations relating to maritime transport and hinterlands. The management and maintenance of quay, rail tracks/yards, warehouses and including the water front are critical to ensuring sustainable maritime transport development in Nigeria. Okorigba (2008) and Okeudo (2013) expressed that, Nigerian government initially commercialized Nigeria Ports Authority in 1992 to form Nigerian Ports Plc and rescinded that decision in 1996. However, post-concession reform as noted by Okorigba (2008) facilitated new equipment and development of port infrastructures in Nigeria. Post –concession has witnessed a very viable port which has contributed to the national economy and eliminated poor quality services and delays at the ports (Ehbenine, 2009).

Based on the observation of Oni (2007), Nigerian ports do not have adequate computerized facilities that can enhance speedy port operation unlike what is obtainable in developed economy of the world. However, it is important to stress that, if and when this facilities and infrastructures are put in place and there is no proper maintenance, it is worst than not having the infrastructures in place because of money, energy and time that would have been wasted.

According to NPA (2014) port concession provides better and more efficient management of shipping operations, application of socially and economically desirable projects thereby freeing government funding. De Lange (2008) illustrated how Rotterdam port authority manage infrastructure access to improve the port service efficiency and hinterland capacity by allocating slots for quayside access more efficiently.

Victor et al (2016) reiterated that, lack of public finance of infrastructure has made Nigeria to lag behind in meeting demands of ever-changing and developing needs of industries. Adelayo (2007) listed some major ports in Nigeria as: Apapa port, container terminal Apapa, Tincan Island, Lagos, RoRo Port, Warri Port, Port Harcourt port, Onne Port and Calabar port. Although, concession contracts (OECD, 2008) can be used to stimulate innovations and many ports were awarded long-term concessions, they were issues on modalities for infrastructural maintenance and development. These issues not properly, accurately and adequately address can serve has impedance to the realization of fundamental objectives of port concession. Hence, this paper investigated the contributions, challenges and development since the emergence of port concession with a view to understand how the problems can be solved and enhance port infrastructural maintenance and development for maximum port operational efficiency.

## 2. Related Literature Review

The role of port infrastructure maintenance and development in Nigeria cannot be over emphasized. Considering the importance of maritime transport in relation to the services and products it provides for the entire nation in form of tourism, fishing, transport, manufacturing, fishing, aquaculture, energy, oil and gas among others; it must be guided and maintained for sustainability development. Examining the roles of the port from this perspective is crucial (Allen 1996; Vallega 1996; Vandermeulen 1996; World Bank 1990). It has been asserted that, for ports functionality, there must be provisions for adequate and well maintained infrastructures. Conversely, Zanetto and Soriani, (1998) opined that; state of technology in maritime transportation did not require a large amount of space for infrastructures or deep canals; and the port function was based on commercial activities which could easily find a home in the city. Indeed, the latest designs and forms of vessels with the aid of technology in maritime sector is perhaps forcing re-organisation and developments across global maritime industries. Development of ports by concessionaires (Autorità Portuale di Venezia 2000) may enhance modernization of existing infrastructure and docks, and especially the redevelopment of some redundant industrial areas which border the commercial sector of the port. According to Five Star Logistics Ltd (2017), Nigeria tolls the direction of global concessioning concepts in year 2000 for the purpose of ports re-development and about 86 local and foreign shipping companies and marine interests were pre-qualified from an even longer list of applicants to enter the initial bid for the concession programme. The 86 firms started by writing an expression of interest to the Bureau of Public Enterprises (BPE) in 2004. All efforts through then was to ensure that the previous challenges militating against ports' operational efficiency were removed by giving concessionaires with integrity and capable of doing the job. According to Five Star Ltd (2017), in the new port reforms agenda, Nigerian Port Authority (NPA) is to concentrate on ownership and maintenance of very large maritime infrastructure while port operations are to be carried out by terminal operators. It distinguished the role of NPA and that of terminal operators. Port planning, development, safety, security, environmental vigilance and keeping law and order among all the port players, nautical management of the channels and waterways like lightining and dredging activities and leasing of port land and infrastructure are the roles of NPA. Whereas, the terminal operators are to ensure the smooth movement of goods going and coming to the ports, investment in efficient maritime operations, maintenance and development of superstructures.

### 2.1. Impact of Concession on Infrastructure Development

Barnabas (2015) expressed that, vessels now dock easily and discharge rapidly compare to what used to happen in the past at Nigerian seaports. In his lecture titled "Providing enabling infrastructure to enhance trade" Mallam Habib Abdulahi (2015) stated some of the achievements of NPA pre-concession and post concession as shown in figure 1 below.

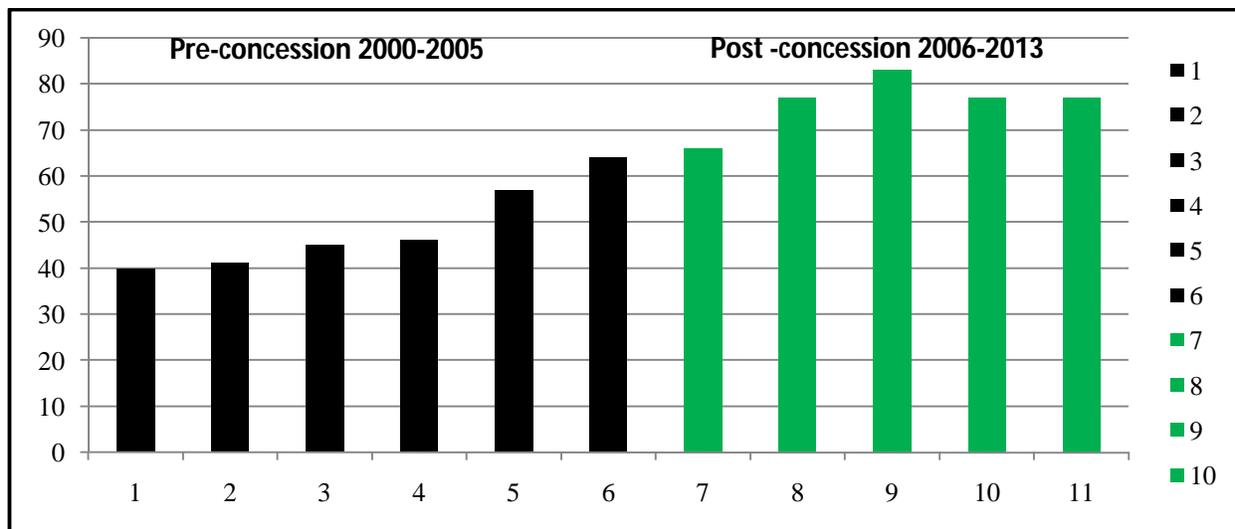


Figure 1: Trend of cargo throughput (Mt) (Mt-Metric tonnes) Excluding Crude oil  
Source: Abdulahi (2015) MD, NPA

Tongzon and Heng (2005) and Nwaogbe et al (2016) all confirmed that, concessioning of ports leads to operational efficiency of ports and economic well being of the country. Anagor (2014) reiterated that, importers and exporters now have confidence in carrying out their businesses through Nigerian ports. Somuyiwa (2008) noted that, most developed cities in Nigeria can be found to be areas where there are seaports. Ndikom (2006) listed the significant impact of maritime transport in the development of Nigeria from the point of employment, exploration and production of goods and services. According to Notteboom, (2007), the flexibility, efficiency and customer satisfaction are the benefits of port concession and the reason it is been adopted globally. It is expected that, concessioning will facilitate technical expertise as foreigners will come and enhance our local knowledge in the industry.

Ships and Ports (2017) expressed the changes that occurred at the terminals after concessions of Roro Port to Five Star Logistics and Grimaldi Group respectively. Similarly, it cited Colombia and Argentina as two out of several countries that adopted port concessioning measures for improvements at the ports. Waiting time for vessels has reduced greatly and number of containers moved per hour improved from 7 to 32 TEUs.

## 2.2. Challenges of Terminal Operators

Good a thing that the terminal operators came on board to salvage worsen maritime situation through port concessioning. However, there are certain challenges that confront these operators. Port operations cannot be efficiently carried out without the provisions of infrastructures (Nwaogbe et al, 2016). Most time they must improvise to provide themselves certain equipment when such are not forth coming from the required authorities. Among the operators, there is now competition in an attempt to source for market and enhance their profitability. To these end, they force themselves to be dynamic and be on watch for and strategize for method that can improve their marketability. Ndikom (2006) and Olaogbebikan et al (2014) maintained that port premise and quay aprons are in bad states and contributed to the slowness in the movement of freight within and outside the ports.

There used to be overlap of functions between private terminal operators and public operators (Everett, 2007). Abdulahi (2015) explained that, economic recession used to have impact on the throughputs at the ports. Though some reconstructions were on going at the port, there is still need for re-vitalization of rail transport, construction of access roads that link to Nigerian seaports and seriously the implementation of cabotage is what the country must overcome so as to realize modern shipping operation at Nigerian ports. Hilda, (2005) and Paixao (2005) stated that, investments at the ports should be tailored to infrastructure, superstructure and hinterland connections. The CEO of ENL and also the Chairman Seaport Terminal Operators Association of Nigeria (STOAN) expressed the challenges confronted the terminal operators after they took over ranging from labours issues, dockworkers, finance, regulatory, politics and creating enabling environment for themselves.

## 3. Methodology

Primary method of data collection through structured questionnaire, interview and observations were used to elicit information on the state of facilities, maintenance and development of infrastructures across randomly selected terminals. The randomness is capture at least one leasee within the years of concession i.e (10,15,25) years were represented.

Descriptive analysis was used to explain the level of development across the terminals and the respondents were asked to rate the level of the companies' investment on seaport infrastructure and maintenance with the usage of Pearson Product Moment Correlation to determine the relationship that exists among various components among the four selected terminals. 10 different shipping agents were selected and filled questionnaires so as to cross examine the two reports from the company and from the importers.

The Nigerian Ports Authority (NPA, 2014) listed the terminals and lease term (years) they are to operate as show in the Table 1 below:

S/N	Terminal	Lease terms (years)	
1	Apapa Terminal A	25	
2	Apapa Terminal B	25	
3	Apapa Terminal C	10	
4	Apapa Terminal D	10	
5	Apapa Terminal E	25	
6	Apapa Container Terminal	25	
7	Ijora Container Depot	25	
8	3 Companies	TCIP Terminal A	10, 15, 10
9		TCIP RoRo Terminal	15
10		Port Harcourt Terminal A	15
11		Port Harcourt Terminal B	25
12		Onne FOT A	25
13		Onne FLT A	25
14		Onne FLT B	25
15		Jelly FOT Onne	25
16		Calabar New Port Terminal A	25
17		Calabar New Port Terminal B	10
18		Calabar Terminal C (old port)	25
19		Warri Old Port Terminal A	25
20		Warri Old Port Terminal B	10
21	2 Companies	Warri New Port Terminal B	25, 25
		KokoTerminal	10

Table 1: List of terminal operators

Source: NPA (2014)

#### 4. Results and Discussion

The likert scale rating of 0-99% in the designed questionnaire on the rate of port infrastructural development across the terminal in Shipbuilding, warehousing, Rail transport, Handling equipment and Berth occupancy provided either by NPA or concessionaires from the experience of the importers and exporters revealed in the Table 2 and figure 2 below. Aggregates of ratings were taken and recorded.

Marks	Ship building	Warehousing	Rail	Quay	Handling equipment	Berth occupancy
0-9						
10-19	1	5	1	6	5	2
20-29	2	4	2	3	4	4
30-39	1	2	1	3	6	4
40-49	2	3	1	2	6	5
50-59	2	7	2	3	7	7
60-69	1	4	1	7	5	4
70-79	3	2	2	7	7	6
80-89	3	2	2	6	5	4
90-99	2	1	1	5	6	6
	17	30	13	41	51	42

Table 2 Ratings of infrastructural development at concessioned ports terminals

Source: Author's computation (2017)

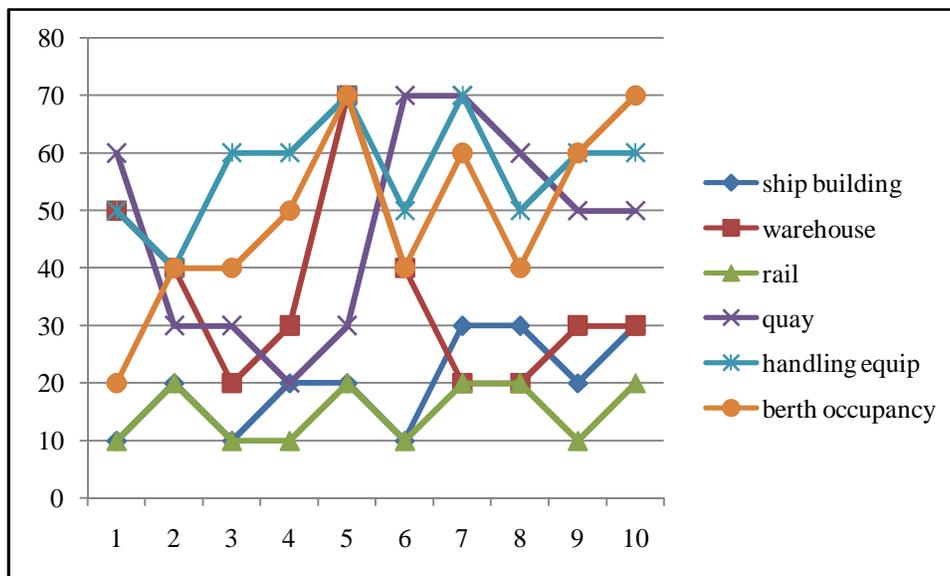


Figure 2: Description of terminal's infrastructural developments  
Source: Author's analysis (2017)

In the Table 2 and Fig 2 above, the description of port infrastructural development were analyzed based on the collected data. Cargo handling equipment infrastructure based facilities were the most considered among all considering the post concession period. Perhaps, that was the reason for increment in cargo throughput since the inception of terminal concession, because, the equipment infrastructures will enhance loading and offloading of cargoes which primarily serve as the major barrier in the past. It has the value of 51% in the Table 2 and highest rise in the figure 2 respectively. Berth occupancy and Quay development had 42% and 41% respectively. The development at the berthing spaces was as a result of dredging and proper evacuation of debris at the shore which made the percentage of the berth occupancy to be higher and synonymous to the Quay development because the two were simultaneously developed. Warehouses have been developed with the ratings of 30% (Table 2) and it was a centre of unity for all appraised facilities when examined from fig 2. Ship building has not really been strongly developed as it has 17% and worst of all is the rail transport infrastructure with ratings of 13%. From Fig 2, Quay should and need to be properly connected with the rail transport in order to witness more rapid development at the ports.

The correlation between investment inputs by the operators against the cargo throughput was carried out.

Correlations				
		Performance	Investment on Infrastructure	Throughput
Performance	Pearson Correlation	1	.604*	.403*
	Sig. (1-tailed)		.000	.003
	N	104	104	104
Investment on Infrastructure	Pearson Correlation	.604*	1	.107
	Sig. (1-tailed)	.000		.011
	N	104	104	104
Throughput	Pearson Correlation	.403*	.107	1
	Sig. (1-tailed)	.003	.011	
	N	104	104	104

\*\* . Correlation is not significant at the 0.05 level (1-tailed).  
Source: Author's Computation (2017)

Table 3: Correlation Analysis

The investment on infrastructure is positively correlated with port performance after post concession of the port with correlation value of  $r = 0.604$  at  $p < 0.05$ . Again, there is positive relationship between the cargo throughput and the performance of the port after post concession with  $r = 0.403$  at significance level of 0.003 which is less than  $p < 0.05$ . There is also positive relationship between infrastructure and cargo throughput which is 0.107 at  $p < 0.05$ .

Hence, it therefore means that, about 60.4 % investment on infrastructure yielded about 40.3 % on cargo throughput after port concession. The research further confirmed the findings of Omoke et al(2015) and Olaogbebikan et al (2014) that post concession had brought great infrastructural development at Nigerian ports.

## 5. Conclusion and Recommendations

Based on the findings of this research, the port infrastructure had changed and various concession terminals had boosted the cargo throughputs as can be attested by the trend of throughputs released by NPA. However, in spite of these developments, there are itemized challenges that still inhibit the smooth running of the terminal operators. Part of these, are government policies especially by some “big wigs” in the industry that are attempting to politicize the normal procedures by creating clauses and differentiating between “general cargo” containerized cargo” and “oil and gas” cargo. At any rate, liquid, bulk, containerized, general cargoes are recognized in the industry worldwide, the nomenclature should follow suit and any deviation may impair the sustainable infrastructural development as the revenue generated by the operators may not be enough if the trend continues not only to maintain the infrastructure but may force these operators to charge exorbitantly and thereby reverse the port throughput to pre-concession state.

The on-going re-construction of Apapa expressway is a welcome development as the congestion that usually surround Nigerian seaport will drastically reduce. Therefore, all access roads at other Nigerian seaport should be considered. Another very important area for port infrastructural development is the area of security. Government as usual should not compromise there efforts at strengthening port security across all Nigerian seaports. The terminal operators should constantly find a modality by which maritime workers will be in harmony with them and their operational charges should be affordable so as to welcome more importers and exporters which may enhance port patronage.

## 6. References

- i. Abdulahi Habib (2015): Providing Enabling Infrastructure to Enhance Trade- Lecture delivered by MD Nigerian Ports Authority
- ii. Adelayo Bamigbola (2007): *The Practice of Shipping Operations* pg 65-69
- iii. Allen, R. (1996): ‘The environmental consequences of port development’, in J. Taussik and J. Amoke Victor, Ikechukwu A. Diugwu2, Obioma R. Nwaogbe1, Callistus C. Ibe, David A. Ekpe (2015): *Infrastructure Financing and Management: The Impact of Concession on the Operations and Performance of Nigerian Seaports* Journal of Behavioural Economics, Finance, Entrepreneurship, Accounting and Transport, 2015, Vol. 3, No. 2, 65-70 Available online at <http://pubs.sciepub.com/jbe/3/2/1>
- iv. Anagor, U. (2014) ‘The gains and challenges of port concession in Nigeria’, *BusinessDay*, February 19, 2014. Available at: [http://businessdayonline.com/2014/02/the-gains-and-challenges-of-port-concession-in-nigeria/#.U\\_G2IUHxQds](http://businessdayonline.com/2014/02/the-gains-and-challenges-of-port-concession-in-nigeria/#.U_G2IUHxQds).
- v. Autorità Portuale di Venezia (2000) *Piano Operativo Triennale, 2000–2002*, Venice: Autorità Portuale di Venezia. — (2002) *News and Sailing List*, Venice: Autorità Portuale di Venezia
- vi. Barnabas (2015): *Impact of Port Concession in Nigeria (A Case Study Of Apapa Seaport)*
- vii. Bousquet, F. and A. Fayard (2015): *Road Infrastructure concession practice in Europe: a report based on document on analysis of highway concessions in Europe*. Mitchell (eds) *Partnership in Coastal Zone Management*, Cardigan, UK: Samara Publishing, pp. 21
- viii. De Langen, Peter (2008), *Ensuring Hinterland Access: The Role of Port Authorities*, JTRCOECD/ITF Discussion Paper 2008-11.
- ix. Ehbenine, O.A, (2009): *Impact of Port Privatization and Concessioning and the future of Nigerian ports*.
- x. Everett, S (2007). ‘Port reform in Australia; regulation constraints on efficiency’, *Marit. Pol. Mgmt.*, 34, (2), 107-119.
- xi. Fivestar Logistics Ltd. (2008). *Seaport concession: Redevelopment of Nigerian seaports in the new millennium*. Retrieved from <http://www.fivestarlogisticsltd.com/concessio.html>
- xii. Hilda M. A. Meersman, (2005). ‘Port investment in an uncertain environment’, *Research in Transportation Economics*, Vol. 13, 279-298.
- xiii. Ndikom B.C (2006): *Kernel Concept of Ship Operations’ Privatization and Concessioning Concepts* Bumico Publishers, 29 Shipolu Street, Shomolu, Lagos Pp22
- xiv. Ndikom, O.B.C. (2006), *The Kernel Concept of Shipping Operations, Policies and Strategies: The Industry Overview*, (Lagos: Bunmico Publishers
- xv. Notteboom, T.E. (2007). *Concession Agreements as Port Governance Tools*, *Research in Transportation Economics*, Vol. 17, p. 437–455.
- xvi. NPA(2014): [www.nigerianports.org](http://www.nigerianports.org)
- xvii. Nwaogbe O.R, Diugwu I.A, Muhammed Musa, Omoke Victor, Gidado S.U (2016): *Project infrastructure management and economic growth: the impact of seaport concessioning on Nigeria’s economic growth (a focus on delta port)* *International Journal of Business and Applied Social Science* Vol.2, No.4, April, 2016
- xviii. OECD (2008): *Joint Transport Research Centre, Round Table, 10-11 Paris-Discussion Paper 2008-19 on Port Competitions and Hinterland Connections P4*
- xix. Okeudo G.N (2013): *Measurement of Efficiency Level in Nigerian Seaport after Reform Policy Implementation. Case Study of Onne and Rivers Seaport, Nigeria*. *IOSR Journal of Business and Management (IOSR-JBM)* e-ISSN: 2278-487X, p-ISSN: 2319-7668. Volume 12, Issue 5 (Jul. - Aug. 2013), PP 46-55 [www.iosrjournals.org](http://www.iosrjournals.org)
- xx. Okorigba, U.M, (2008): *The Challenges and Prospects of recent port performance in Nigeria; A case study of Tincan Island ports*. MSc thesis of Federal University of Technology, Owerri (Transport Management Technology)

- xxi. Oni S.I (2007):Nigeria's Transport Infrastructural Development: An Integral Part of The National Economic Empowerment And Development Strategy(Needs)
- xxii. Paixao, A. C. C., (2005). 'Simulation and Lean port Environment', *Maritime Economics &Logistics*, 7, 262-280.
- xxiii. Ships and Port Ltd (2017)
- xxiv. Somuyiwa A.O (2008): Logistics Infrastructure and Port Development at Apapa Port, Nigeria. *Pakistan Journal of Social Sciences* 5(9):953-959
- xxv. Tongzon, J. and Heng, W. (2005) 'Port privatization, efficiency and competitiveness: Some empirical evidence from container ports (terminals)', *Transportation Research Part A: Policy and Practice*, 39(5), pp. 405 - 424.
- xxvi. Vallega, A. (1996) 'Cityports, coastal zones and sustainable development', in B.S. Hoyle (ed.) *Cityports, Coastal Zones and Regional Change: International Perspectives on Planning and Management*, Chichester, UK: John Wiley, pp. 295-306.
- xxvii. Vandermeulen, J.H. (1996) 'Environmental trends of ports and harbours: implications for planning and management', *Maritime Policy and Management*, 23: 55-66.
- xxviii. Victor D.A, Adepoju O.O and Somuyiwa A.O (2016) Analysis of Cargo Handling Operations in Apapa and Tinian Island Ports *Academia Journal of Scientific Research* 4(6): 159-165, June 2016 DOI: 10.15413/ajsr.2016.0275
- xxix. World Bank (1990) *Environmental Considerations for Port and Harbor Development*, Technical Paper 126, Transport and the Environment series, Washington, DC: World Bank.
- xxx. Zanetto, G. and Soriani, S. (1998) 'Economic development and environmental management in the government of Venice', in F. Salvatori (ed.) *Italy's Seas: Problems and Perspectives*, Rome: Società Geografica Italiana, pp. 221-234.