



Logistics Centres Assessed as a Port City Decongesting Strategy: Case Study of a Nigerian Port City

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ABSTRACT

The work assessed the role of logistics center concept as a port city decongestion strategy. Logistics centers in world's most modern ports were studied and the impacts they make on port efficiency noted. Port back up areas, freight villages as well as their connecting corridors were all evaluated to ascertain their contribution to port city traffic decongestion. The approach applied in the study involved the assessment of traffic situations in the Nigerian port city of Lagos. The paper suggested two solutions to the handling of port city congestion problems. The first is the formation of a rail linked logistics village positioned outside the city peripheries. The second is the formation of a waterfront port system logistics center linked by feeder vessels and hinterland rail connectivity. Pipeline linkages were also suggested for tank farms.

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1. Introduction

The position of port cities in the logistics chain of import and export cargoes cannot be over-emphasized in the distribution of inward goods into the hinterland as well as the preparation of goods destined for export. Ports play the middleman position in the distribution of inward goods into the hinterland as well as in the preparation of goods destined for exports. They serve as centers for consolidation and deconsolidation of cargo. They play the role of the warehouseman for these cargoes pending the time they are collected by their consignees.

Over the years, the role of ports as part of the logistics supply chain of countries has made port development a government and public sector concern. Government investment in port is supported by the growth pole principle which infers that growth achieved in the sector will be transferred to the rest of the economy. However, the inefficiencies abounding in government organizations have made the inclusion of the private sectors absolutely necessary, thus giving rise to four different generations in port development.

Rapid development of ports in recent times has led to the transfer of congestion to port cities thus requiring the development of the transport logistics drivers in most port cities. The relationship between ports and cities has been age long. The port of Amsterdam and Rotterdam for instance are said to have developed within cities. However, the development in ship sizes and other factors forced them to relocate towards the sea.

Today, many port cities are laden with the problem of traffic congestion thus necessitating the development of dedicated truck corridors, rail links and other aspects of the transport logistics driver in a bid to avoid congestion. To avert the problem of congestion, logistics centers also known as freight villages have now been incorporated into the logistics supply chain of a port city. However, the adaptation of most port cities to this new design has been slow. This has resulted in the manifestation of inefficiencies in most port city supply chain.

2. Objectives

The objective of this paper is to assess the role of the logistics center concept as a port city decongestion strategy, generally. The specific objective is to assess how the Nigerian port city of Lagos has utilized the logistics center concept as a port city decongestion strategy.

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2.1. Literature review

The need for collaboration between port authorities and port cities in the area of planning has been the subject of so many literatures in port reform. (World Bank (2007). Logistics center development serves as a means for improving the efficiency of highly congested ports. This has been applied together with other parameters in the port of Hong Kong (Yang et al 2008).

The inadequacy of space both within and outside port districts in world major ports like Hong Kong has also been observed by many writers. (Wing 1998), (Low, 2002). To make provision for inadequate space certain ports like Taiwanese port of Kaohsiung and some others have created offshore logistics centers for cargo processing and consolidation. (Yang et al 2008).

The utility of logistics centers or freight villages as a port city urban freight solution has been greatly emphasized in literature. Allen and Eichorn (2007). The work analyzed solutions strategies applied by the cities of Bologna and Bremen in optimizing logistics issues in the port cities.

The concept of port city logistics centre has also been emphasized using the term port back-up areas. This refers to a logistics park, a distribution park or even a freight centre where facilities are made available for cargo processing, consolidation and deconsolidation along the port hinterland supply chain. (KMI 2005). A port is in existence to ensure sufficient continuity in the transport chain. It is more than an intermodal hub also consisting of a back up area (such as logistics centre and distribution centre), with an active role in the value added chain. KMI (2005). IAPH and Spanish Ports Agency (2003).

2.2. Methodology

The method applied in this research was drawn from the lean logistics theory applied to ports. The method is based on the development of agile ports where best principles are adopted by other operators in the system thus inducing efficiency in other members of the logistics supply chain. In this regards, the logistics centre practice together with the best transportation link option available in the system were used to produce a best operations handling plan for the port city congestion problem.

3. Report of findings

The location of logistics centers inside ports in Lagos state has been found in this work as the ultimate solution to the continued congestion problems in the hinterland area of both Lagos and neighboring Nigerian states. Two aspects of the port system existing in the Lagos state can be compounded to constitute of the water front port systems complex and the hinterland dry port complex. The waterfront port systems complex constitutes of the ports of Lagos, Tin can Island port, Ikorodu port, Snake Island and adjacent oil terminal facilities in the area. Whereas the port systems in Nigeria operate the landlord model with concessions being operated by global port giants like AP Moller and others, the hinterland dryport complex constitutes of inland container depots operated by private

firms basically located within Lagos metropolis. Movement of oil from tank farms and oil terminals located at the water front complex for hinterland transportation are by freight tank cars. With over 70 percent of Nigerian goods passing through the Lagos port complex most of which are inward cargoes, a congested road transport logistics system is thus built on a daily basis within the Lagos metropolis. The need for effective cargo diversion from the road mode to other modes steered from an effective logistics centre within the waterfront port systems complex is thus apparent.

3.1. Proposal for a logistics village

Given the continued increase in containerization and cargo flow in the Lagos ports, this research makes hold to propose the location of a logistics village along a functional rail line and another logistics centre at the waterfront port sector. Two, logistics centers suggested by this work can thus be referred to as rail linked logistics village and waterfront port system logistics centre. Whereas the hinterland rail linked logistics village is designed to decongest the already congested Lagos city with her ineffective road linked dry port system, the waterfront port systems logistics centre proposed in this work, will do the same along the already congested port networks. For the water fronts of Lagos, Tin can Island and Snake Island port locations, new spaces for possible quayside extension should be made available for future expansion. This required expansion can be realized through the formation of the waterfront port systems logistics center proposed in this work. The waterfront logistics center should be accessible from both land and sea side connected properly located outside the Lagos metropolis.

3.2. New rule for waterfront tank farms

A rule should be passed banning tankers from loading directly from waterfront located tank farms. Transportation of refined products from such tank farms should be partly by pipelines to designated hinterland locations away from the Lagos metropolis. Such rule will automatically decongest the already overloaded road networks linking Apapa with the rest of Lagos state. Underwater pipeline together with special locations away from the city center for the tank farms should be surveyed.

Source: Author.

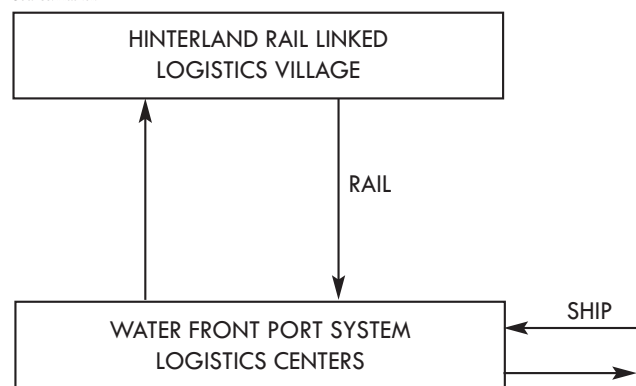


Figure 1: Logistics center solution model for congestion problems in port cities

4. Conclusions

This research proposes a two way logistics center solution to the port city congestion problem existing in maritime cities. The Lagos port system in Nigeria was used as a case study to re-design the port city in a way to reduce ship freight induced congestion from the city roads, thus making the transport logistics aspects of the global freight induced, thus making the transport logistics aspects of the global freight supply chain a sustainable one. Other port cities in the global village having congestion problems may borrow leaf.

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