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Review Article

OPERATIONAL LOGISTICS OF INLAND DRY PORT IN NIGERIA: DYNAMICS, IS SUES AND PROSPECTS

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Abstract

Background: Ports have always had an important role in the development of national and international trade of countries, currently challenged by globalization, with implications for sustained economic development of their regions. Globalization, emerged from trade growth between continents, regions and countries. It has led to an expansion of global sea trade with huge impacts for ports.

Objective: We narratively reviewed the operational logistics of inland dry ports using Kaduna dry port as a case study.

Methods: The study was a narrative review of published studies.

Results: Nigerian port system has been in dire need of reforms. The problems and complications of the 2001 congestion saw the port at an operational standstill and called for an urgent attention Increasing competition between modes and growing capacity per unit of transport demand for higher performance level in ports, which largely depend on their characteristics, such as infrastructure, equipment, governance structure and integration in logistic networks

Conclusion: Thus, as inland logistics centers, dry ports are playing an increasingly pivotal role in the multi-modal transport network that sustains economic activity by delivering key inputs to local enterprises and facilitating their exports of raw materials, semi-manufactured products, and finished goods.

Keywords: Tnland port, dry port, Nigeria, performance, logistics, suply chain

Introduction

A dry port is defined as an inland terminal to and from which shipping lines could issue their bills of lading, with the concept being initially envisaged as applicable to all types of cargo [1]. Inland dry ports are otherwise known as Inland Container Depots (ICDs) or Containers Freight Stations (CFS). According to United Nations Economic Commission for Europe (UNECE, 1998), an ICD refers to: "A common-user facility other than a seaport or an airport offering a total package of activities for handling and storage of containers with the inbound and outbound flows by any applicable mode of transport being controlled by customs" [2]. An ICD is equivalent of a seaport located in the hinterland. It receives containers by rail or road from seaport for examination and clearance by customs and competent authorities. In both theory and practice. However, the concept has evolved not only to be closely associated with the rapid expansion of containerization and related changes in cargo handling but also to be applied in a variety of different contexts having the common characteristic of relating simply to 'a place inland that fulfils original port functions' [3]. In contrast, there seems to exist a common understanding that the successful implementation of the 'dry port' concept will have the joint effects of lessening congestion, alleviating pressure on storage space and reducing

handling operations in port, as well as delivering lower transaction costs to shippers [4].

Hanappe, relates to dry ports as multifunctional logistics centres with a variety of firms operating at the same site [5]. The description corresponds to concept of freight villages, according to Economic Commission for Europe, since this definition does not emphasize a connection to seaports nor specify the range of services offered at the terminals [6]. Beresford and Dubey [7], in their survey of dry ports in Africa, use a dry port definition that corresponds to the definition of an Inland Clearance Their definition is very specific regarding ownership and services, in particular customs clearance, although with no specification of the type of connection to a seaport.

Furthermore, Beresford and Dubey emphasize the importance of a dry port as a common user facility that would promote the transfer of goods from origin to destination without intermediate customs examination, the so-called through-transport concept. A dry port (Sometimes called inland port) is an inland intermodal terminal directly connected by road or rail to a seaport and operating as a centre for the transshipment of sea cargo to inland destinations. In addition to their role in cargo transshipment, dry ports may also include facilities for storage and consolidation of goods, maintenance for road or rail cargo carriers and customs clearance services [9-11]. The location of these facilities at a dry port relieves competition for storage and customs space at the seaport itself. A dry inland port can speed the flow of cargo between ships and major land transportation networks, creating a more central distribution point. Inland ports can improve the movement of imports and exports, moving the time-consuming sorting and processing of containers inland, away from congested seaports.

Cullinane and Wilmsmeier [12], have aligned port development and, specifically, the 'dry port' concept to the Product Life Cycle [13]. In their exposition, where a port has evolved to attain the maturity phase, the space required for container storage and other port-related activities approaches, and eventually encounters, either a physical constraint on further expansion, or possibly a competitive constraint from other activities and land use in areas adjacent to the port. It is for this reason that much investment during the maturity stage of the port development cycle focuses on the rationalization of port services, as well as on process innovations primarily aimed at capacity effects (for example, conversion to more effective storage technologies), particularly as land becomes a scarce commodity and commands premium prices or rents. The argument continues that ports enter the decline phase of the Product Life Cycle once the point has been reached when the limits to feasible rationalization, investment and access are reached and it is then that port activity reduces.

This study adopted modification of a definition by United Nations Economic Commission for Europe [2]. Thus, an ICD in this study refers to: "A common-user facility other than a seaport or an airport offering a total package of activities for handling and storage of containers with the inbound and outbound flows by any applicable mode of transport being controlled by customs". In strict terms, the ICD concept is limited to a facility dedicated to serving containers only as opposed to the dry port concept described by Roso [4], which encompass both general cargo and containerized freight. Nonetheless, most of activities carried out at ICDs and dry ports are generally the same and hence the rationale for the terms to be used interchangeably. Efficient and effective movement of goods is very critical in today's competitive environment especially for developing countries suffering from crippling logistics costs which limit their competitive ability in the global economy. Putting in place an optimal logistics network design offers great potential for logistics cost reduction and service quality improvement [15]. It is recognized that attractiveness and economic success of a seaport is increasingly dependent on its ability to integrate into the flexible supply chains connecting it to the hinterland [5,9]. Essentially, four functions take place at freight terminal: transfer of cargo, mostly unitized, between two modes; the assembly of freight in preparation for its transfer; the storage of freight awaiting pick-up; and delivery and the logistical control of flows [16]. In addition to all functions mentioned above, services such as maintenance of containers, customs clearance, and other value-added services should take place at a dry port terminal in accordance with customers' needs. According to Roso, dry ports are used much more consciously than conventional inland terminals, with the aim of improving the situation resulting from increased container flows, and a focus on security and control using information and communication systems. Scheduled and reliable high-capacity transportation to and from the seaport is essential and determines the dry port's performance [9]. The authors defined the benefits, for different actors of the transport system, resulting from all three types of dry ports. Implementation of a close dry port in a seaport's immediate hinterland increases a seaport's terminal capacity that might result in increased productivity since bigger container ships will be able to call at the seaport. With dry port implementation seaport's congestion from numerous trucks is avoided, as well as CO2 emissions, since in Europe one train can substitute for some 35 trucks. The benefits from distant dry ports derive from the modal shift from road to rail, resulting in reduced congestion at the seaport gates and its surroundings as well as reduced external environmental effects along the route. The distant dry port extends the gates of the seaport inland, with shippers viewing the dry port as an interface to the seaport and shipping lines [17,18].

A Midrange Dry Port is a dry port situated within a distance from the seaport generally covered by road transport and serves as a consolidation point for different rail services. The high frequency achieved by consolidating flows, together with the relatively short distance, facilitates the loading of containers for one container vessel in the dedicated trains. Hence the dry port can serve as a buffer relieving the seaport's stacking areas. However, Ng and Gujar indicate that the current solution, where shippers often choose dry ports located closest to their production base, is not necessarily the optimal solution in terms of the minimization of transport cost, mainly due to government policies and dry ports' inability to provide value-added services needed by the shippers.19 Although a concept of a dry port should bring numerous benefits to the actors of the transport system, there are still many impediments to the implementation of the same; the most common are land use, infrastructure, environmental and institutional impediments [14].

Implementation of a dry port could create seamless seaport inland access, i.e. smooth transport flow with one interface in the form of the dry port concept, instead of two, with one at the seaport and the other at the inland destination [14]. However, creating effective seaport inland access requires coordination between all actors involved [9]. Besides the necessity for scheduled and reliable rail connection in the creation of seamless seaport inland access, security at a dry port is also of crucial importance, if it is to perform customs clearance. The implementation of the ISPS (International Ship and Port Facility Security) code involves changes in both the physical design of the security in a port area and adjoining facilities but also changes in general port activities [20]. Consequently, it raises the cost of implementation of the dry port.

Logistics operations is the science of moving goods from one place to another by road, rail, sea, air etc. Involving minimum transit time (optimum route) and at most economical cost. Here economy means choosing the most suitable vehicle size to transport maximum quantity at minimum possible freight cost i.e. basis correct weight-volume combination. The Total Logistics Concept (TLC) aims to treat the many different elements that come under the broad category of distribution and logistics as one single integrated system. It is a recognition that the interrelationships between different elements, for example delivery, transport and storage, need

to be considered within the context of the broader supply chain. Thus, the total system should be considered and not just an individual element or subsystem in isolation [1,20].

Logistics management is the part of supply chain management that plans, implements, and controls the efficient, effective forward, and reverse flow and storage of goods, services, and related information between the point of origin and the point of consumption to meet customer's requirements. (CSCMP, 2006). Logistics management activities typically include inbound and outbound transportation management, fleet management, warehousing, materials handling, order fulfillment, logistics network design, inventory control, supply/demand planning and management of third-party logistics services providers [21], gives the following definition of logistics: "Logistics is the process of strategically managing the procurement, movement and storage of materials, part and finished inventory (and the related information flows) through the organization and its marketing channels in such a way that the current and future profitability are maximized through the cost-effective fulfillment of orders. From the definitions above, business logistics can be seen as a process of planning purchasing, storing, and managing the flow of material to the market. There are tools that are used to fulfill this process in an optimal way to maximize the profit. An example of these tools is the information system.

Development of Inland Container Depots in Nigeria

The 2001 ports' congestion problems of Nigeria necessitated the need to have inland container depots and bonded warehouses as prelude to a policy of decongesting the ports. The congestion had overwhelmed the ports' operational system and functionality thereby leading to collapse in productivity and underutilization of the ports system. Strategically, the ports constitute the lifeline, flagship and gateway to a maritime based economy. The collapse of the ports will mean the collapse of the economy with the obvious strategic implications. To this end, the Nigerian port system has been in dire need of reforms. The problems and complications of the 2001 congestion saw the port at an operational standstill and called for an urgent attention for a proper resolve of the problems which were caused by government policy inconsistency [22].

It is needful at this stage to state that Container Freight Station (CFS) or Inland Container Depots (ICDs) also referred to as "dry ports", provides various services for handling containers outside the port. The concept and term ICD and CFS are usually used inter-changeably, as there is not much difference in their operational functioning. Specifically, dry port located in the hinterland is called "ICD" while if located in the port city, it is known as container freight station (CFS). It is expected that Dry Port are the "hubs", which facilitate the aggregation and transportation of export containers from hinterland to the gate way ports. Similarly, they act as receiving "hubs" for the import containers meant for the hinter land [22]. Other associated functions include cargo consolidation, stuffing and de-stuffing, warehousing customs clearance and duty collection, processing of customs documents, cargo and container handling and others. According to Hornsby [23], the word "Inland" means situated in the interior of a country, far from the sea or border. Container in this sense means large metal box or other sealed container for transport of goods by road, rail, sea or air. "Depot" means "store house". Therefore, an inland container depot (ICD) is a storehouse for storing metal containers that are transported from the sea or air, to the interior (hinterland) of a country.

The "dry ports concept" which is synonymous to inland container depots when fully integrated, would make Nigeria as a maritime nation part of the international multi modal transportation system, and key player in the global logistics chain.24 This will help the country to link landlocked neighboring countries to the logistic chain. Federal Government has finally approved the take-off of the Inland Container Depots (ICDs) and freight stations, which have been on the drawing board over the years since the 2001 problematic port congestion. It is also expected to note that construction of the project which is billed on the platform of public-private partnership would soon commence. The Build Own, Operate and Transfer (BOOT) Model has been advocated. Although, the first and second phases of the project as approved by the Nigerian Federal Government are not yet clearly stated, insiders say the up north zones of the country known to constitute the major hinterland destinations outside the port areas will be highly considered. Oyo State known to constitute majority of the Southwestern international trade, will also be favoured. Stating the urgent and inevitable needs of the dry ports. The government noted that, as a point of origin and final entry and exit for international cargo, the ICDs require immediate take-off so as to complement the public multi-modal transportation and logistics chains and, at the same time will carefully be integrated into the existing port's operating systems and networks [15,26].

Operations and Functions of Inland Container Depots

ICD operations in Nigeria started in 1979 when Elder Dempster lines, a leading member of the United Kingdom West Africa Liner Conference (UKWAL), joined with the Nigeria Insurance Corporation of Nigeria (NICON) to establish ICDs in Kano and Kaduna (northern Nigeria) under the management of a company called Inland Container Nigeria Ltd (ICNL). The two ICDs were originally conceived to serve the hinterland and its landlocked neighbours (Niger and Chad), and were established as extensions to seaports to operate within the Nigerian Ports Authority guidelines, whereby cargo discharged at the seaports destined for the hinterland is immediately land freighted to the ICDs under customs bond.20,21 One of the reasons for the establishment of ICDs was to cater for hinterland shippers in the landlocked countries, particularly those in the northern part of the country, who had to clear their cargoes through customs at the seaports. However, these ICDs became moribund and non-operational over the years. This constituted a serious bottleneck to their businesses.

Benefits and Impacts of Inland Container Depots in Nigeria

A dry port (sometimes inland port) is an inland intermodal terminal directly connected by road or rail to a seaport and operating as a centre for the transshipment of sea cargo to inland destinations. In addition to their role in cargo transshipment, dry ports may also include facilities for storage and consolidation of goods, maintenance for road or rail cargo carriers and customs clearance services. The location of these facilities at a dry port relieves competition for storage and customs space at the seaport itself. A dry inland port can speed the flow of cargo between ships and major land transportation networks, creating a more central distribution point. Inland ports can improve the movement of imports and exports, moving the time-consuming sorting and processing of containers inland, away from congested seaports [15].

The impact of ICDs to the economy of Nigeria and Kaduna state government cannot be over-emphasized. The economy will benefit from the participation of hinterland shippers and neighbouring countries in the transport of Nigerian import and export of cargoes. Shippers will no longer be required to travel to the seaports to take delivery of or ship goods to their overseas partners; these functions will be performed by the ICD operator at the dry port. ICDs, especially those which are to be located near the borders of northern Nigerian states, will be of strategic transit importance to landlocked countries such as Niger and Chad, thereby increasing cargo traffic and economic development to Nigeria. It will create substantial revenues from hinterland shippers' participation, large volumes of cargo to hinterlands, control cargoes destined for neighbouring countries, Industrial development encouragement, locking Nigeria into international trade flows. There are several opportunities associated with the operations of ICDs. such as increased revenue to Government from expanded trade, multi-modal transport connections and positive trade-offs, Consultation on freight rates, diversified trade, Maritime developments, e.g. expanded

shipping activities [7,15]. Connections to landlocked countries, facilitating trade connection to African Union transport policies and attraction of foreign investors.

Advantages of Inland Container Depots

In Nigeria, ICDs are regarded important for industrial development, enhancing the export of finished goods, solid minerals, agricultural produce or raw materials due to proximity of ICDs to the source of production. This gives exporters the option of direct routing via the appropriate seaport, with maritime customs clearance, or utilizing the ICD facility where responsibility for the cargo is transferred to the Multi-modal Transport Operators locally. These options can indirectly encourage trade and contribute to regional development. The availability of an ICD with road-rail inter-modal capability also gives shippers a modal choice for exports and imports [15-18]. This choice can be made on customer preference or criteria such as volume. ICDs can also provide greater control over hinterland trade and neighbouring countries shippers.7 Opportunities exist in Nigeria through an ICD system to control cargo flows from hinterland and landlocked countries thereby increasing trade relations, revenue and economic development.

Disadvantages of Inland Container Depots

In Nigeria, however, there is a lack of infrastructure development. An effective, integrated transport system is the bedrock of ICD operations and one of the weaknesses in Nigeria is the condition of road and rail transport infrastructure which needs to be seriously addressed before the final development of the new ICD project. The rivers Niger and Benue, which link Niger and Chad, could serve as additional multimodal transport connections to neighbouring countries. Modern road haulage operations often use radio frequency identification systems to track cargo, which allows for real-time tracking of cargo on the Internet, thereby building confidence for shippers during shipment. Such technology is largely unavailable to road haulage transport operator vehicles in Nigeria.

Operations of Effective Inland Container Depots

The establishment of dry ports (ICDs) in the six geo-political zones of the country is no doubt a welcome development. They are expected to be transit users' facility with public authority status located in the hinterland equipped with fixed and movable installations for handling and storage of cargoes which will be operated as a "Land Lord" model as being practiced in Onne Port complex.

However, for inland container depots to achieve these desired objectives, it is imperative for government to provide integrated inter-modal transport facilities in this country. It is interesting to note that government is involving the Nigerian Railways as one of the facilitators of this project apart from Nigeria Port Authority (NPA), Nigerian Maritime Authority (NMA), and Nigeria Shippers Council (NSC). Without an effective integrated transportation system, this project is bound to fail, rail transportation is the pivot of inland container depots, because of the containers, large and extra-large equipment will be conveyed from the port to these ICDs areas through the rail line [7,8,11].

Requirements for Successful Inland Container Depots

(a) Prior Survey: For the ICD to be successful, reduction in total transport cost is a prime criterion, as there is a possibility of marginal increase in total handling cost per box on origin to destination basis. This underlines the need for sound economic justification for setting up ICD through a carefully evaluated traffic likely to be handled at the proposed facility. A survey/feasibility study must precede the setting up of all ICDs and copy of the report should invariably accompany the application for setting up such a facility. Data for carrying out analysis could be from secondary sources and field observations, structured over time and space. The latter is more realistic and truthful. Prior discussion must be held with exporters, shipping lines, freight forwarders, port authorities, concerned Commissioners of Customs/Excise etc., and their point of view fully reflected in the report.

(b) Traffic Flows: The traffic flows between Inland centres of production and ports need to be streamlined.

(c) Facility: The facility has to be economically viable for the management and attractive to users, to the railways for full trainload movement; to other transport operators; shipping lines; and freight forwarders. must have certain minimum amount of traffic. The prospective entrepreneurs are, therefore, strongly advised to study very carefully the viability of the project from the TEU traffic availability point of view. In the background of growing international trade, the infrastructural facility may have to precede the actual generation of demand. This is particularly important as such facilities have a long gestation period to be fully operationalized.

(d) Land Requirements: The minimum area requirement for ICD is four hectares. However, a proposal could also be considered having less area on consideration of technological upgrading and other peculiar features/ justifying such a deviation.

(e) Design and Lay-Out: The design layout should be the most modern state-of-art equipped with mechanical/electrical facilities of international standards. Key to a good layout is the smooth flow of containers, cargo and vehicles through the ICD. The design and layout should take into account initial volume of business, estimated volume in 10 year's horizon and the type of facilities exporters would require. The initial layout should be capable of adapting to changing circumstances. The design should encompass features like rail siding, container yard, gate house and security features, boundary wall (fencing), roads, payments, office building and public amenities. The track length and number of tracks should be adequate to handle rakes and for stabling trains where relevant the perimeter fencing and lighting must meet the standards required by Customs Authorities. The gate being the focal point of site security should to properly planned. The administration building is the focal point of production and processing of all documentation relating to handling of cargo and containers and its size will be determined by the needs of potential occupants. Fixed provisions should be made for sanitation facilities and possibly a food service facility. A good communication system and computerization and EDI connectivity is essential.

(f). Equipping the ICD: The ICD would select most modern handling equipment for loading, unloading of containers from rail flats, chassis, their stacking, movement, cargo handling, stuffing/destuffing, etc. The following minimum equipment should be made available at ICDs:

(g) Rail head: The parties will be required to provide at their own cost all infrastructure facilities including land, track, handling equipment for containers, maintenance of assets including track, rolling stock, etc. as per extant railway rules applicable to private sidings. The cost of the railway staff would be borne by the party as per the prevailing Government policy.

(h) Tariff: Tariff structure and costing should be worked out along with the feasibility study and information provided with the application.

(i) General: The main function of an ICD being receipt, dispatch and clearance of containerized cargo, the need for an up-to-date inventory control and tracking system to locate containers/cargo is paramount. Each functional unit of the facility (e.g. siding, container yard gate, stuffing/ destuffing area, etc.) should have up-to-date and where possible on-line, real-time information about all the containers, to meet the requirements of customers, administration, railways etc. As far as possible, these operations shall be through electronic mode [7,15,25].

Facilities Required in Inland Container Depots

A dry port is an inland terminal directly connected to seaport(s) with high-capacity transportation mean(s) where customers can leave/pick up their standardized units as if directly to seaport: it is expected that the establishment of ICDs should be anchored on a distance related categories as could be seen as follows: 300 – km + distances from port, 300km + distances from –300km – distance from port distance from port-land locked [14,25].

Environmental Impacts of ICD Development

However, there are concerns about the environmental impact of ICD developments. The construction of any major infrastructure project like a port or ICD has to undergo public investigation, meet international environmental standards, and undergo a full environmental impact assessment before government approval is given, to avoid future environmental hazards. In Nigeria, however, long-term public ownership of the ports, railways and other transport facilities, coupled with a shortage of funds for infrastructure improvement, has restricted trade growth through the ports and slowed the full implementation of an ICD network with facilities planned at strategic locations, especially where significant export volumes exist, or in some cases close to large internal markets. The current ICD development programme in Nigeria takes account of earlier experiences and developments within multimodal transport generally.

Dry Port Functionality

Deriving an all-embracing definition of a 'dry port' is difficult as the role of a 'dry port' varies from country to country and from region to region; dry ports also vary in scale, complexity and area of specialism [14,15]. Thus a broad definition, proposed by UNCTAD (1982), is used here as a common user facility with public authority status, equipped with fixed installations and offering services for handling and temporary storage of any kind of goods (including containers) carried under customs transit by any applicable mode of transport, placed under customs control and with customs and other agencies competent to clear goods for home use, warehousing, temporary admissions, re-export, temporary storage for onward transit and outright export [14,15]. In practice, many dry ports have fitted into a coherent pattern of evolution, which embraces both core port functions and broader logistics activities.

Broadly, their management structures also follow the theoretical framework which has been applied to seaports: that of landlord, tool and service ports. The landlord model describes a structure within which the government provides the infrastructure, while the concessionaire is responsible for the provision, maintenance and operation of the infrastructure. Moreover, long-term concessions, viewed as substantial investments, are expected from the private company [27]. An intermodal terminal operated under the tool port model means that the government provides both the infrastructure and the operational superstructure with the operations being carried out by the private sector. In the case of the public service model, all investment in the infrastructure and superstructure, as well as the operation of the facility, is undertaken by the government. However, it is important to appreciate that, even though government investment is an effective way of accelerating dry port development, the heavy financial burden cannot be ignored, because few pure infrastructure projects are truly profitable [28]. Perhaps, the best example of a coordinated nationwide promotion of dry ports is seen in India, where facilities have been established in several phases over a period of around 30 years [19].

Determinants of Dry Port Performance

To study the determinants of dry port performance, we should first identify the indicators of port performances. Since the environment in which ports operate has changed dramatically, dry ports are affected by various new forces driving global competition, including the far-reaching unitization of general cargo, the rise of mega-carriers, the market entry of logistics integrators, the creation of network linkages among port operators, the development of inland transport networks, and so on. In this context, seven key determinants of port performance are proposed based on the existing literature [15,25]. These determinants include: cargo handling equipment, port infrastructure, customs operation, size of dry port, quality of logistics service, port staff and reliability of port operations.

Cargo handling equipment

Similar to seaports, container handling equipment are used in dry ports, which include rubber-tired gantry cranes, mobile cranes, top handlers, side handlers, reach stackers, forklifts and so forth. Usually, container handling equipment are viewed as the main machines for dry ports as well as seaports, and they can greatly influence both the container handling capacities and, in turn, the performance of the dry port [14].

Size of the Dry Port

A number of research articles consider the size of the seaports as another factor that influences their performance since the land size determines the total storage capacity of a seaport. It is especially important in the peak season. Accordingly, the size of a dry port is taken as one of the factors when we consider its performance and management in the import and export of consignment [15,19].

Infrastructure

Both investment in port infrastructure and the capital-intensity level are other factors that can explain the differences in performance and efficiency between ports, because without infrastructures or the ability to offer services, a port could not be able to handle an increasing number of vessels or cargo. The quality of access to a dry port and the quality of the road/rail/waterway interface determines the quality of terminal performance therefore it is necessary to have scheduled, reliable, transport by high capacity means to and from seaport [14,15]. Thus, dry ports are used much more consciously than inland terminals with the aim to improve the situations caused by increased container flows, focus on security and control by use of information and communication systems.

Customs

Dry port can play a supportive role as it is a logistics center which can provide services such as handling, storage, stuffing/un-stuffing, consolidation, customs clearance and container maintenance. As customs practice involved in the premise of the dry port the customs procedure in the clearance of the goods have impact on the performance of the port [22].

Quality of Logistics Service

Freight forwarders are agents not moving freight themselves but play a critical role in organizing supply chains and moving goods on transit corridors. The role of freight forwarders is to organize international (or eventually domestic) logistics on behalf of shippers and consignees. This includes organizing transportations with railways or trucking companies, and customs representation activities at the border. They make a key contribution to supply chains by linking with forwarding partners abroad, which essentially ensures the continuity of the supply chain, and makes it possible to track shipments in transit. Hence, their interaction and collaboration with the port staff and the activities of other logistics service providers is crucial in determining the performance of the dry port [22,26].

Number of Staff

The numbers of staff or the labor costs are also considered as a potential factor that may influence the performance of dry port. The number of employees is usually taken as a critical factor influencing businesses of dry ports as more staff can handle the inbound and outbound containers or bulk cargos more efficiently especially in peak hours. Dry ports should have sufficient middle-level and frontline managers as well as workers to handle the businesses [23].

Reliability

Reliability means a steady and predictable performance adapted to shipping lines' schedules. If a port authority or port operator always makes delays during operation process due to strikes, equipment breakdown, weather etc., shipping companies and shippers will suffer huge losses due to this kind of unreliability. Supply chain reliability is a major concern for traders and logistics providers alike. In a global environment, consignees require more certainty about when and how deliveries will take place. This increases the demand for quality in logistics services, posing challenges for private agents and for governments, all of which face pressure to facilitate trade while safeguarding the public against criminal activity, health concerns, or terrorism threats [24,25].

Stakeholders Theory

Stakeholder theory is a theory of management that concerns itself with matters related to morals and ethics in running a business. Business must seek to maximize value for its stakeholders. It emphasizes the interconnections between business and all those who have a stake in it, namely customers, employees, suppliers, investors and the community. The business to serve the need of the stakeholders, and not just the shareholders [21,26].

Export-Led Growth Approach

This is a colonial administration initiative built around producing cash crops for exports. It is expected that through this approach, the rural areas will be opened up and linked through infrastructural facilities. The logic in this approach is that the opening into world markets resulting from international demand for products of the developing economies will eventually galvanise resource utilization and capacity building of the hitherto dormant and under-utilized resources and potentials. This explains the development of various ports, railways, roads across the length and breadth of Nigeria. Through this approach, it is expected that personal incomes, employment and government revenues will increase [22,23,28].

Recommendations

Upgrade Container Handling Equipment: The government and port authorities should invest in modern, high-capacity container handling equipment to enhance operational efficiency, especially during peak periods. Regular maintenance schedules must also be established to ensure optimal functionality.

Improve Infrastructure and Intermodal Connectivity: The power supply system at the port should be upgraded to ensure uninterrupted operations. Additionally, efforts should be made to rehabilitate and expand the rail network connecting the port to major commercial centers and seaports, thereby strengthening multimodal integration.

Digitize and Automate Customs Clearance Processes: The Nigeria Customs Service (NCS) and other relevant agencies should prioritize the automation of customs procedures at KIDP. This includes implementing electronic tracking, online documentation, and integrated clearance systems to reduce delays and improve transparency.

Conclusion

Inland port services are still evolving in Nigeria with many limitations associated with government policies, poor funding, limited infrastructures, and poor management and utilization.Adequate and continuous training of customs officials and port personnel is essential to build capacity for efficient service delivery. Addressing staff shortages and enhancing their technical competence will improve both speed and accuracy of logistics operations. Port management should implement modern communication tools and robust Customer Relationship Management (CRM) systems. This will improve customer engagement, feedback handling, and overall satisfaction. Government agencies and regulatory bodies must harmonize policies, streamline regulations, and reduce bureaucratic bottlenecks. Creating a more enabling policy environment will enhance the competitiveness and attractiveness of KIDP to investors and users. Encouraging private sector participation through PPP arrangements can mobilize the necessary investment, innovation, and managerial expertise required to upgrade and sustain port infrastructure and services.

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The authors declare there is no conflict of interest.

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