



## INLAND DRY PORTS: MECHANISMS FOR IMPROVED INLAND FREIGHT DISTRIBUTION IN NIGERIA

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### ABSTRACT

*The study focuses on inland dry ports as mechanisms for enhancing inland freight distribution in Nigeria. It examines how a well thought-out and functional IDP would facilitate improved logistics solutions for shippers in the port's hinterland and serve as mechanisms through which inland freight distribution could be facilitated in Nigeria. The concept of Distance Decay provides the framework for this paper, which used descriptive survey approach and simple random sampling to produce a sample of 343 out of a population of 1412. The data was analyzed using simple percentage. The findings show that for IDPs to play their role effectively, they must be directly linked with multimodal transport system to seaports. This would enable them to improve the efficiency of seaports, reduce transport costs and transit time for shippers, attract more investment to the hinterland, relieve seaports from congestion, alleviate pressure on storage space and reduce handling operations. The findings confirmed the role of IDPs as mechanisms through which inland freight distribution could be facilitated in Nigeria. The study shows the three most pressing challenges facing the IDP operation in Nigeria as the absence of rail freight services, lack of regulatory framework for inland dry port development and security challenges on the highway. Therefore the paper concludes that the Federal Government of Nigeria has to address the imbalance in modal split in order to resolve the difficulty in inland freight distribution to IDPs, provide adequate security and rehabilitate the major roads to assure the safe and seamless transportation of freight-laden vehicles on the highways and institute the regulatory framework that encourages shipping companies to issue Through Bill of Lading to shippers in order address the challenges faced by hinterland-based shippers who incur heavy cost and endure hardship while taking delivery or sending their cargoes through the seaports.*

**Key words:** loading units, investment, Intermodal Transportation, friction, decay

### INTRODUCTION

A seaport is considered as a gateway and a maritime intermodal interface in the transport chain, with their principal role recognized as trade and transport logistics facilitator with the provision of services to ships and their cargo on both seaside and landside. However, with the role of seaports having changed as a result of the globalized and deregulated environment where technological changes such as containerization now dictates the intermodal loading units (such as containers), the development of intermodal logistics (which emphasize door-to-door services), have made seaports a node in the supply chain network. This is with the result that seaports are now a network-based entity that has developed relationship with their hinterland and the region where they are located.

Consequently, marine terminals are tending towards working together and in a seamless way with systems of networked inland intermodal facilities in order to increase their productivity and extend their hinterland. On the other hand, marine and inland terminals have begun to play a decisive role in global production-distribution supply chain management strategies. The ongoing process of close interaction between port-maritime systems and inland freight transport networks is called "port regionalization" (Notteboom and Rodrigue, 2005 cited in Iannone, 2013).

As critical components in the supply chain, seaports constitute the essential key to providing logistics functions such as cargo management, information sharing, logistics integration and value



adding services. However, notwithstanding the vital role played by seaports in the supply chain, to guarantee that cargo is transported efficiently to the succeeding stage in the logistics system, they must ensure that they facilitate intermodality and contribute to offering different value adding services, which include warehousing, storage, packing and preparing containers for delivery to inland destinations, using inland transportation (Jeevan, 2016).

Inasmuch as seaports play prominent role in intermodal transportation (i.e. the movements of cargo between different kinds of transport modes), maritime logistics and in the development of inland distribution outlets and in the emergence of infrastructure for hinterland connections, they are also vital in developing inland strategies as they seek cooperation with inland terminals such as inland dry ports where selected seaport activities are carried out (Klink, 2000).

Inland dry ports are inland intermodal hubs where a number of services may be offered to shippers and carriers outside the simple handling and storage of standardized loading units, such as containers. The extended gateway concept includes the idea that some seaport facilities and functions can be replicated or carried out at hinterland locations (Iannone, 2013).

The principal reason for an inland dry port is to project the port hinterland reach through the improvement of facilities of inland distribution centres, which help in integrating the maritime and inland freight depots. The location of Inland dry ports involves a methodical decision making process considering that it requires heavy financial cost to relocate the facility within a short time once it has been established. Hence as a rule, inland dry ports are established along developed transport corridors (Olah et al., 2018).

## LITERATURE REVIEW AND CONCEPTUAL CLARIFICATION

### Conceptual Clarification

#### The Concept of Inland Dry Port

An inland dry port has been defined as 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 (Olah et al., 2018). The development and growth of inland dry port help to reduce transportation cost as well as transit time, which combine to contribute to attract additional investment to logistics, manufacturing and service industries in the region where the inland dry port is located.

According to United Nations Conference on Trade and Development (UNCTAD) (1991), inland dry port is "A common user facility with public authority status, equipped with fixed installations and offers 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 other agencies competent to clear goods for home use, warehousing, temporary admissions, re-export temporary storage for onward transit and outright export".

However, Leveque and Roso (2002) cited in [Werikhe & Zhihong \(2015\)](#) have defined an IDP as "an hinterland intermodal node directly connected to seaport(s) with large capacity transport vehicles, where shippers can drop or collect their transport unit as though it were straight from the seaport". This definition considers the fact that an IDP does not only do the traditional role of



transshipment as hinterland terminals but also offers further services like consolidation, storage, maintenance and repair of containers.

The evolution of IDPs is considered be proper for landlocked developing countries which are constantly faced with the challenge of physical isolation, supply chain related barriers from the sea and the high costs of trading with the rest of the world ([Werikhe & Zhihong \(2015\)](#)). Therefore, in order to be in position to surmount the challenges associated with being landlocked, the concept of inland dry port evolved.

IDPs also evolved as a result of the problems that confronted existing seaports. The problems are attributed to the improvement in the size and capacity of container ships, with the result that sea ports frequently faced the problem of lack of ability to tackle import and export cargo operations in a regular manner. This frequently resulted in congestion at different sea ports due to long waiting time of trucks and haulage vehicles ([Werikhe & Zhihong, 2015](#)). Consequently, there was restricted access, which usually hampered productivity at sea ports with dire consequences for shippers who bear the brunt of the transportation and operational costs, besides other negative counter effects such as carbon emissions as an externality of congestion, accidents, boredom and fatigue of drivers and loss of morale among port workers. Thus, the emergence of IDP was necessitated.

The emergence of IDPs in the seaport system offers the following advantages in optimizing the efficiency of seaports (Jeevan, 2016):

- Decreasing waiting time at seaports
- Providing suitable pick-up and delivery times
- Minimizing detention periods at seaports
- Offering an competent and reliable transportation system
- Improving on the swiftness in operations
- Increasing level of productivity for inland transport chains
- Lowering seaport dwelling times
- Improving the speed of inland transport service times
- Increasing dwelling time for cargoes at the terminal
- Improving productivity of terminal-land interface handling operations
- Improving seaport efficiency and quality of operations

### **Port-Hinterland Connectivity and Inland Freight Distribution**

Port-hinterland connections do not exist merely for their own sake. Rather, the implementation of inland dry port concept as an extended gateway leads to a shift to sustainable transport solutions through the provision of port-hinterland connections by the extensive use of trains and/or barges. This is vital to providing benefits to all stakeholders in port-hinterland freight logistics. According to Iannone (2013), inland dry ports as extended gateways should contribute to: (i) enhance the hinterland accessibility and connectivity of seaports, (ii) relieve congestion phenomena in seaports and over inland transport networks, (iii) promote logistic integration between different types of firms. In this way, inland dry ports as extended gateways are able to: (i) affect the cost and service efficiency of supply chains, (ii) improve the competitive position of the seaports, and (iii) promote sustainable development and regional economic growth.

Port-hinterland has to do with the landside geographic area serviced by a particular seaport for importing and exporting goods. Port-hinterland networks consist of multiple inland transport

modes (for inland freight distribution) and nodes which serve as logistics centres. The inland transport modes and the nodes involve a wide range of challenges which invariably affect both divides of the public and private sectors, which range from long term to short term. The inland transport modes for freight distribution are road, rail and barge.

Port-hinterland logistics system basically consists of physical and information flows among operators and nodes that operate in port-hinterland networks. Some of the actors involved in port-hinterland logistics system have been identified to include port authorities, shipping lines, marine and inland terminals, freight forwarders, consignors and consignees, customs and other administrative and inspection bodies, barge and train operators, trucking companies, and information service providers. However, the chief actors in the decisions taken in the process of inland transportation are shippers, carriers and terminal operators. Shippers are economic agents that need to move cargoes between origin and destination locations. Carriers are firms that provide services for transportation demands. Terminal operators transship loading units between transport means and are reputed to also directly offer (depending on the circumstances) additional value added activities, intermodal marketing services, including inland transport services (Iannone, 2013).

The issues involving the selection, organization and control of inland transport are so significant that it has to be done either by shippers or freight forwarders in case of “merchant haulage”, or by shipping lines and marine terminal companies respectively in cases of “carrier haulage” and “terminal operator haulage”. Furthermore, it is the custom among the actors involved in providing logistics solutions to enlarge the scope of their operations by way of investments in new assets and/or agreements with other firms. On the whole, the development of the container logistics industry has gone beyond mere need for economies of scale, strategic positioning, and market control. Such an expansion in the scope of activities has been encouraged by a number of technological, regulatory and financial reasons, besides changes in shippers’ preferences (Iannone, 2013).

It has been estimated that about a quarter of the annual total inland freight that occur within European Union originates or terminates in the port (NEA, 2010). Reliance on unimodal transport through road is still the most dominant mode in port-hinterland container distribution owing to its superiority as regards speed and flexibility. The share of road transport ranges, for instance, from 96 to 89 and 58 per cent in the ports of Naples, Le Havre, and Rotterdam, respectively. However, the enormous demand of road freight transport is leading to unsustainable and unpleasant levels of negative impacts (which include air pollution, climate change, congestion, and safety risks) both on the physical environment and on society. The major negative effects of excessive reliance on road transport is global warming caused by the emissions of carbon dioxide (CO<sub>2</sub>) and other greenhouse gases.

In light of increasing demands of shippers, a lot of attention is currently being directed at providing intermodal solutions in relation to making the best of the landside distribution of maritime freight from and to seaports. Accordingly, beyond port-to-port maritime logistics solution which international transport chain offers, intermodal transport facilitates the door-to-door delivery of standardized loading units (such as containers) via different transport modes using truck and rail, and different means of transport. This is with the result that it will lessen the negative environmental and social impacts of freight transport operations. Certainly, one of the numerous benefits of intermodal freight transport is the prospect of modal shift, which is the partial or full transfer of shipments from one mode to another, such as from truck-only to barge/truck or rail/truck combined transport, during the forwarding to destination (Iannone, 2013).

## Conceptual Framework

### Distance Decay and Friction of Distance Concepts

The Distance Decay Concept refers to the observed phenomenon that the interaction in terms of supply and demand between two places decreases with distance (Ewing, 1974 cited in Yan, 2015). Even though the concept is derived from geography, it has been found to be relevant in studies related to business, logistics and supply chain management, leisure and tourism. According to Wall, 2000 cited in Yan, 2015, its implication is twofold: first, at destinations, tourist arrivals are more from nearby areas than from distant ones, and second, for a source market, tourists tend to visit more often the sites in a relatively smaller geographical range than those within a larger radius. These phenomena can be explained with the frictional effect of distance on travels (McKercher and Lew, 2003 cited in Yan, 2015).

The distance decay effect states that the interaction between two locations declines as the distance between them increases. Once the distance is outside of the two locales' activity space, their interactions begin to decrease. The distance decay concept constitutes the framework for establishing the inland dry ports, having taken into account how hinterland-based shippers in Nigeria experienced a lot of inconveniences such as cumbersome customs clearance at seaports and having to travel long distances to seaports in the south, in order to convey outbound cargoes to seaports and take delivery of inbound cargoes. The harrowing experiences of hinterland-based exporters and importers are enough to discourage industrial activities, which have adverse effect on regional development since the movement of imported material input and industrial output for overseas market, to and from the seaports, is difficult. This calls for moving seaport activities inland through the establishment of inland dry ports (Roso and Lumsden, 2010).

An inland dry port is understood as an inland location where the consolidation and distribution of cargoes take place, with functions similar to those of seaports, including the handling of cargoes, the provision of intermodal transport connectivity, information exchange and other ancillary services, such as customs inspections, storage, the maintenance and repair of empty containers, and tax payments. Inland dry ports have the potential to increase inland connectivity and their establishment allows shippers to undertake consolidation and distribution activities at inland locations relatively closer to their production facilities, resulting in the reduction of transaction costs and accompanying risks, and this can contribute to their products to becoming competitive in the global markets (Ng and Gujar, 2009).

In light of logistics sector being not only disorganized and inefficient, but also extremely fragmented, thereby resulting in high logistics costs, the distance decay and friction of distance concept make it necessary to establish inland dry port which can have various positive impacts on export potential, such as (i) the preservation (and even improvement) of a product's quality, thus sustaining (or even increasing) its value; and (ii) the reduction of transport costs (through consolidation) and damage to cargoes (Ng and Gujar, 2009).

With the advent of faster travel, distance has less effect than it did in the past, with the exception of places previously well-connected by railroads. Advances in communications technology, such as phones, radio and television broadcasts, and internet, have further decreased the effects of distance. But not when it involves the movement of containers. The distance decay and friction of distance explain the preponderance of industrial activities in the south where there are more seaports than the northern hinterland. This creates disparity between the coastal areas and the hinterland. To bridge this gap, the Federal Government decided to establish the Inland dry ports in the hinterland in order replicate seaport activities.



As the *distance* from a point increases, the interactions with that point decrease, generally because the time and costs involved increase with *distance*. Thus to bridge the gap between the seaport and hinterland in Nigeria, IDPs were established so that shippers can receive from the seaports and dispatch their goods to same. With respect to friction of distance, economic activities on which distance has no effect are uncommon and freight distribution costs are growing in a non-linear fashion with distance from the terminal or the distribution center. This necessitates the call for inland dry ports in order to bring the sea close to the hinterland destinations.

The Distance Decay and Friction of Distance concepts agree with Waldo R. Tobler's First law of geography, which states that "All things are related, but near things are more related than far things." This explains the rationale for bringing seaport activities to the inland areas where shippers carry out their industrial activities. Distance decay can be mathematically represented by the expression  $I=1/d^2$ , where  $I$  is interaction and  $d$  is distance, among other forms and can be applied to a range of different geographical concepts from human settlements, to geo-linguistics, to ecology (Dempsey, 2012), and to supply chain management concepts, such as inland dry ports.

Just as distance decay between human settlements is somewhat relieved by things like good infrastructure and rapid transit, so too, inland dry ports would alleviate the painful ordeal of hinterland-based shippers. If a city can afford to provide well-maintained roads and adequate means of transportation from the center to the outskirts, then the city will experience more even development, and less disparity between the city center and the fringes. This argument holds true for the inland dry ports which are used as instruments to boost export activities and regional development and population redistribution.

According to Dempsey (2012), distance decay between two groups of people is what gives rise to things like differences in languages and regional customs, and the distance decay between biomes is part of what makes the earth such an ecologically diverse place. That is the positive aspect of distance decay, but the advantages conferred on coastal region need to equally spread to the hinterland through the inland dry ports to counter the effect of distance decay.

## **METHODOLOGY**

The study used the survey research design, and it involved the collection of primary data using structured interview and administration of questionnaire while the secondary data were sourced from 12 relevant organizations such as Nigerian Shippers' Council, Nigerian Ports Authority, Nigerian Shippers' Association, etc. The population for this study was made up of 1412, consisting of workers at the seven inland dry ports and the local residents in the communities hosting the IDPs.

In determining the sample size for this research, the Taro Yamane's formula given as (*equ 1*) was used:

$$n = \frac{N}{1 + N (e)^2} \dots\dots\dots (equ 1)$$

Where:

- n = sample size
- N = population size (1,412)
- e = level of significance (our level of significance is chosen at 5%)

Applying the formula at significant level of 5%;

$$\frac{1,412}{1 + 1,412 (0.05)^2}$$

$$\frac{1,412}{1+3.53}$$

$$\frac{1,412}{4.53}$$

$$\frac{1,412}{4.53}$$

$$= 311.69$$

Therefore, the sample size = 311.69, which is approximated to be 312. However, 31 (i.e.10%) is added to accommodate non-response and this brings the sample size to 343.

The primary source of data was drawn from admin staff, exporters/importers, freight forwarders, loaders, local residents, operation reach stackers and transporters, which made up the 343-sample selected. Out of the 343 copies of questionnaire administered, 341 were returned to represent 99.42% response rate which amounted to 341 copies returned.

The data analysis and presentation of findings were carried out based on the rate of response to the questionnaire. The data generated have been presented in tabular form and statistically to enhance analysis.

The objectives of the study were to (1) examine how a well thought-out and functional inland dry ports would facilitate improved logistics solutions for shippers in the port's hinterland and (2) verify the need for inland dry ports as mechanisms through which inland freight distribution could be facilitated in Nigeria. Data were analyzed using simple percentage.

The hypotheses for the study were (1) Ho<sub>1</sub>: Functional IDPs do not make a difference as to improve logistics solution for shippers in the port's hinterland (2) Ho<sub>2</sub>: Inland dry ports do not make a difference as mechanisms for inland freight distribution in Nigeria.

Table 1 shows the total number of questionnaire distribution (343) and the number that was retrieved (341).

Table 1: Questionnaire distribution

IDPs	Questionnaire Administered	Questionnaire Retrieved
Erunmu, Ibadan	28	28
Isiala Ngwa, Aba	26	26
Heipang, Jos	29	29
Zawachii, Kano	66	66
Zanfarawa, Funtua	28	28
Jauri, Maidugiri	22	22
Kaduna IDP	144	142
<b>Total</b>	<b>343</b>	<b>341</b>

Source: Eto, G.M. 2023

Table 2 shows the total sample size of 343 and the computed sample size proportional allocation to each actor used in the study.

Table 2: Computed sample size proportional allocation to each actor used

S/N	Respondents	Number	Sample Size/Target Respondent
1	Admin Staff	75	$\frac{75}{1,412} \times 343 = 18$
2	Exporters	112	$\frac{112}{1,412} \times 343 = 27$
3	Importers	367	$\frac{367}{1,412} \times 343 = 89$
4	Freight forwarders	85	$\frac{85}{1,412} \times 343 = 21$
5	Loaders/Forklift drivers	83	$\frac{83}{1,412} \times 343 = 20$
6	Local Residents	566	$\frac{566}{1,412} \times 343 = 138$
7	Operation Reach Stackers	41	$\frac{41}{1,412} \times 343 = 10$
8	Transporters	83	$\frac{83}{1,412} \times 343 = 20$
Total		1,412	343

Source: Eto, G.M. 2023

Table 3 shows the total sample size of 343 and the computed sample size proportional allocation to each IDP location

*Table 3: Computed sample size proportional allocation to each IDP location*

S/N	Respondents	Number	Sample Size/Target Respondent
1	Erunmu, Ibadan	114	$\frac{114}{1,412} \times 343 = 28$
2	Isiala Ngwa, Aba	107	$\frac{107}{1,412} \times 343 = 26$
3	Heipang, Jos	118	$\frac{118}{1,412} \times 343 = 29$
4	Zawachi, Kaduna	270	$\frac{270}{1,412} \times 343 = 66$
5	Zanfarawa, Funtua	115	$\frac{115}{1,412} \times 343 = 28$
6	Jauri, Maidugiri	92	$\frac{92}{1,412} \times 343 = 22$
7	Kaduna IDP	596	$\frac{596}{1,412} \times 343 = 144$
Total		1,412	343

Source: : Eto, G.M. 2023

Data for the objectives were collected from primary sources with the use of a 4-point Likert scale questionnaire.

## ANALYSIS AND DISCUSSION OF FINDINGS

Objective 1: Examine how a well thought-out and functional inland dry ports would facilitate improved logistics solutions for shippers in the port's hinterland

Majority of the respondents (89%) observed that most shipping companies are yet to recognize the functional IDPs in Nigeria as ports of origin for export and ports of destination for imports, hence they seldom issue through bill of lading for cargoes destined for the inland dry ports. This contributes to low patronage of the IDPs and the harrowing experience of shippers who have to travel long distances to the seaports to take delivery their import cargoes and to forward their export cargoes.

Therefore, in order for inland dry ports to facilitate improved logistics solutions for shippers in the port's hinterland, respondents were of the view that shipping lines must be compelled by the government to allow shippers to decide where they prefer to take delivery of their consignments, whether at the inland dry ports and issue Through Bill of Lading for such import cargoes accordingly. This viewpoint agrees with the findings of Eto (2023).

100% of the respondents affirmed that for IDPs to play their role effectively, they must be directly linked with multimodal transport system to seaports. This agrees with UNESCAP, (2018) which states that IDPs provides avenue to transfer cargo between the different modes used for transportation between a port origin and an ultimate inland destination, or vice versa.

Inland dry ports (IDPs) have been in existence for over 35 years in order to mitigate the major challenge of port congestion due to the continuous increase in international trade through containers (Adejumo, 2020). 92% of the respondents noted that as complement to seaports, IDPs exist to relieve the seaports of congestion by receiving imports and thereby saving hinterland-based shippers the stress of traveling long distances to take delivery of their import cargoes at seaports. IDPs also operate to consolidate export cargoes for onward transportation to seaports and ultimately to overseas markets.

Respondents identified the following challenges facing the IDPs in Nigeria: poor planning of IDPs in Nigeria, inappropriate location due to political motivation, absence of rail freight services, absence of inland dry port development plan and Master Plan of transportation, lack of regulatory framework for inland dry port development, difficulty in accessing funds from banks and foreign investors, failure of government to register the IDPs with the international Chamber of Commerce upon completion, failure of shipping companies to issue Through Bill of Lading, lack of locomotives and wagons hinder rail operations, Security challenges on the highway frustrates the movement of land freight distribution by road, the use of obsolete trucks in moving freight from seaports results in frequent break-down and delay in delivery, and lack of political will to improve IDP Operations in Nigeria. All of which confirm findings from the study by Eto (2023).

Objective 2: Verify the need for inland dry ports as mechanisms through which inland freight distribution could be facilitated in Nigeria

77% of the respondents agreed that, as elements of hinterland distribution network in Nigeria, inland dry ports were projected to stimulate a modal shift, which would lead to less traffic and congestion at seaport gates and seaport cities. A bulk of the shippers interviewed opined that the efficient handling and distribution of cargo to and from the hinterland is essential for the general performance of seaports in Nigeria and for the functionality of the entire supply chain. The port managers at the IDPs were unanimous in the opinion that the establishment of the inland dry ports in Nigeria is expected to result in reduction in road congestion and associated costs of road accidents. However, Khaslavskaya and Roso (2020) have suggested that inland dry ports need to be integrated into seaport hinterland transportation systems to achieve the aim of enhancing the efficiency of seaports.

92% of the respondents agreed that a well thought-out and functional inland dry port would facilitate improved logistics solutions for shippers in the port's hinterland.

### **Inland Dry Ports as Mechanisms for Inland Freight Distribution in Nigeria**

69% of the respondents agreed that the gridlock on the Apapa ports access roads has been attributed to the absence of parking space in the port area for heavy duty petroleum tankers and trailers. Consequently, trucks park haphazardly in order to load petroleum products. Prior to the port concession arrangement in 2006, trucks used the limited space within the Lagos Port Complex and Tin Can Island ports premises designated as truck holding bay. However, following the partial privatization of the ports, the space assigned as truck holding bay is no longer available within the ports. This has compelled truck drivers to queue with their vehicles on the port access



roads while waiting for their turn to load consignments. This is in addition to the chaotic traffic situation created by the over 2,000 petrol tankers that ply the ports access roads.

As in most parts in Europe where reliance on unimodal transport through road is still the most predominant mode in port-hinterland container distribution (owing to its superiority as regards speed and flexibility) (Iannone, 2013), the case is not different in Nigeria (Eto, 2023). However, the roads in Nigeria are in deplorable condition and this, according to all the respondents, makes journeys on roads most hazardous for drivers and freight in transit which contributes to slow process of cargo delivery to the seaports from the hinterland and cargo evacuation from the seaports.

In the view of respondents, the collapse of railway transport in Nigeria and the considerable strain on the limited port space at Lagos seaports led to the perennial congestion and the neglect of rail transport has affected the rate at which cargoes (inbound or outbound) are evacuated or brought into the ports, with attendant gridlock of Apapa port access roads. Consequently, respondents observe that this has given rise to cargo congestion in the port and the resultant shift to road transport in freight distribution has brought about traffic congestion on Apapa access roads. The resolution of the Apapa gridlock and the cargo congestion at the ports will depend on the revival of rail transport, the maintenance of the highways and the speedy completion of IDP projects in Nigeria (Eto, 2023).

According to respondents, to worsen the already horrible traffic situation of the Apapa access roads, created by excess vehicles, there is utter neglect of the bad condition of the roads, which are mostly pothole ridden. This has compromised the efficiency of service delivery of the ports due to the loss of enormous man-hour on the ports access roads.

All the respondents observed that the application of the ETO electronic call-up system has proved futile because it did not yield the desired results, hence the search for long-lasting solutions continues. It is to this end that the question of IDPs as mechanism for improved inland freight distribution and the need to link the ports with multimodal transport system to improve on the port hinterland connectivity becomes imperative. This will fast-track the process of inbound cargo evacuation from Lagos Port Complex and Tin Can Island port as they strive to handle general cargoes, containerized cargoes and petroleum products.

## **Conclusion**

Several factors were considered before the Federal Government of Nigeria decided to choose the locations where the inland dry ports are situated. Among such factors is nearness to the industrial base of hinterland shippers who are operating many miles away from the seaports where imports first land. However, inland dry ports have the potential to optimize inland connectivity and their establishment also enable shippers to undertake consolidation and distribution activities in the hinterland at locations relatively closer to their production facilities, with the result that there will be reduction of transaction costs and risks that go with it, which contributes to their products being competitive in the global markets. The long distance from the seaports to inland locations has proved to be a harrowing experience for shippers and this forms the basis for which shipping companies are implored to issue Through Bill of Lading to enable imports to be shipped directly to the inland dry ports locations in the hinterland rather than stack them at seaports, awaiting the second leg of the journey to be paid for by the shipper. However, the seaport hinterland access is faced with lack of rail freight transport connections and there is huge challenge of over reliance on unimodal road transport, which is mostly in deplorable



condition. This is a major disincentive for investors and would-be in inland dry port business, which calls for government intervention. Other pressing challenges facing the operation of IDPs in Nigeria, as identified by respondents, are absence of rail freight services, lack of regulatory framework for inland dry port development and security challenges on the highway, which frustrates the movement of land freight distribution by road. Therefore the study recommends as follows:

The Federal Government of Nigeria should (1) muster the political and operational will to address the imbalance in modal split in order to resolve the difficulty in inland freight distribution to IDPs with the aim of speeding up the evacuation of import cargoes from the ports (2) provide adequate security and rehabilitate the major roads to assure the safe and seamless transportation of freight-laden vehicles on the highways. This will shore up the revenue generation by shippers and inland dry port concessionaires (3) the Government should institute the regulatory framework to formulate policies that encourage shipping companies to issue Through Bill of Lading, which name specific inland dry port as port of origin and destination in order address the challenge faced by hinterland-based shippers who incur heavy cost and endure hardship while taking delivery or sending their cargoes through the seaports.

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