



The presidential infrastructure development fund and the development of seaport infrastructure in Nigeria, 2019-2023

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Abstract

This study assessed the impact of the Presidential Infrastructure Development Fund (PIDF) on the development of port infrastructure in Nigeria, with a specific focus on seaport infrastructure. Extant analyses on the provision of seaport infrastructure in Nigeria revolve around exclusive reliance on the neoliberal framework and nationalization policy in the provision of maritime infrastructure. Drawing on the ex-post-facto design, this study argues that the inclusion of the PIDF into the transportation sector, with a special emphasis on public-private partnerships, is a catalyst for the revitalization of critical seaport infrastructure in Nigeria. Using the aid of the theoretical frame of infrastructural development, the study found that PIDF is

instrumental in the decongestion of Nigeria's seaports through the building of the Lekki Port and Inland Dry ports and several Inland container depots in Nigeria. The public policy implication of this is that the federal government of Nigeria should sustain its intervention in the seaport infrastructure, given its strategic importance to the national economy.

Keywords: Economy, fund, infrastructure, seaport

Introduction

The seaport infrastructure in Nigeria has remained in a state of decay for several years. The seaport infrastructure is a set of fixed assets and durable operational tools that support a seaport's interior maritime and cargo handling operations (UNTACD, 2022). More fundamentally, the seaport infrastructure refers to the base for port activities to carry passengers, cargo, and vessels that traverse ports. Its essential components include port terminals, dock facilities, and port operating equipment, including cranes, tug boats, dredgers, artificial global maritime routes, and other physical infrastructures such as electronic equipment (Olufemi et al., 2021). It also includes the deep-sea ports and inland dry ports that are established for the decongestion of the existing seaport (NPA, 2023). According to the Nigeria Port Authority (NPA), Nigeria had six seaports by 2015 (NPA, 2015). These include the Calabar, Warri, Port Harcourt,

Onne, Tin Can Island, and Apapa seaports. Between 2015 and 2016, the World Bank Ease of Doing Business, which measures the effectiveness of ports in "Trading Across Borders," ranked Nigeria at a depressing 182/183 out of 185 countries (World Bank, 2016). Various ports in Nigeria, as of the period of the assessment, were contending with gridlock. It was reported that Apapa Port was losing about N140bn weekly (Sesan, 2017). This affected the overall productivity in the economy as productive man-hours were wasted on the road. Nigeria loses trillions annually as a result of the phenomenon of road congestion (World Bank, 2016). Available data shows that port congestion is a global challenge, although there are variations in the severity of the congestion and its nature since some of the delay could occur in the seaside, landslide, and hinterland (Eddragash, 2022). Despite the prominent role of China in the improved maritime trade, they are still affected by

port congestion (Lin et al., 2024). In Africa, while there has been a 1% improvement in the overall port efficiency across the continent, most port infrastructure have decayed infrastructure.

A large body of extant literature contends that at the root of the crisis bedeviling seaports across the world is the place that public policy makers accord to the maritime infrastructure. The intellectual contention is divided into two groups: they are the Optimists of Critical Maritime Infrastructure Protection (CMIP) and the Pessimists. These groups of scholars believe that infrastructure is never neutral and is always inherently political (Liebetrau & Bueger, 2024). According to them, the most basic vulnerable facility of maritime infrastructures is the seaport. The CMIP optimists argue that protecting the shipping infrastructures is one of the state's top political priorities and a precondition for developing the blue economy as the ocean hosts vital infrastructure such as undersea cables that support the nation's economy and if not given adequate attention could be harmed by pirates and smugglers (Bueger, 2021, Bueger & Liebetrau, 2022). They therefore insist that the main concern of the maritime security agenda should be

how to protect critical maritime infrastructure, including ports, and how to enhance their safety and resilience. CMIP scholars organize maritime infrastructure into five categories, namely: shipping, energy, communication, fishing, and marine biodiversity. Regarding seaport infrastructure, shipping is often seen as a subset of the transport industry. This includes port infrastructure, transport infrastructure, such as liquefied natural gas (LNG) terminals, as well as invisible shipping lanes (ISHLs), traffic separation schemes (TPS), lighthouses (Lighthouses), navigational zones (NZs), and other maritime safety-related infrastructure. Ships, including their building and maintenance, can also fall into this category (Bueger & Liebetrau, 2023). Given its vulnerability to accidental, intentional and cyber-related threats, seaport infrastructure requires urgent and focused attention from the state. Damage to critical maritime infrastructure can occur as a result of decay, and accident, including volcanic events, underwater slides, seismic events, and extreme weather conditions, which could lead to shipping accidents. They also contend that apart from natural disasters, criminals can vandalize seaport infrastructure at will. They therefore

maintain that beyond the argument and appropriateness of state intervention in the economy is the need to protect the seaport because it is a national security concern. They posit that these infrastructures can be protected by frequent maintenance and building of new infrastructure to forestall their collapse (Bueger & Liebetrau, 2023; Ljungkvist & Boin, 2007).

There is an avalanche of empirical works on the positive outcomes of government intervention in the seaport infrastructure in Nigeria (Ndikom, 2025, 2006; Emenyonu et al., 2016; Ezenwa, 1996). All of them believe that the gains of the implementation of the PIDF have had a relative improvement of port infrastructure in Nigeria and reflect the prosperity and dynamism associated with neoliberal economic policies (Ifem et al., 2024). On the contrary, some believe that government intervention in the maritime sector has not yielded the desired results, even though the seaport is one of the critical infrastructures in the Nigerian economy. To these scholars, although the state has committed a lot of money into the seaport infrastructure, the sector has underperformed within the last few years (Anozie, 2023; Bamidele & Oludele, 2017). Nevertheless, to provide a comprehensive and fundamental solution

to the challenges militating against seaport efficiency in Nigeria, the administration of Muhammadu Buhari in 2018 supported the creation of the Presidential Infrastructural Development Fund (PIDF) to revive the maritime economy and other transport operational activities in Nigeria. The major thrust of this PIDF is to develop the transportation sector, deep-sea ports, and inland dry ports to decongest existing ports and increase inter-port competition to reduce costs. Additionally, investments were made to reduce the waiting time of vessels, increase the speed of documentation and clearing, and increase overall ship registry tonnage. The oversight of funding and developing the project was entrusted to the Nigerian Sovereign Investment Authority NSIA (NSIA, 2018). The major objective of this study is therefore to investigate whether PIDF intervention through public-private partnership in the seaport has facilitated the decongestion of existing ports through the establishment of Inland Dry ports and the building of new deep-sea ports in Nigeria.

The study contributes to the raging debate on the appropriateness of state intervention in the provision of critical infrastructure in Nigeria. It maintains that beyond the usual debate on state

intervention in the economy is the view that some infrastructures form the critical foundation that determines the success of any economy, and if they are left unattended, they could decay and derail the sustenance of the national economy. Practically, public policymakers and business players in the field of seaport, such as those that engage in shipping and forwarding, will find the study very beneficial. The article is segmented into five sections. Following the introduction is the literature review. The third section encapsulates the methodology, while section four deals with the presentation of the empirical indicators of the correlation between PIDF and the improvements in the seaport infrastructure in Nigeria, especially since the introduction

PIDF and seaport infrastructure: Conceptualization and review of related literature

Intervention on the infrastructural decay has largely been achieved through presidential directives. Presidential directives have become a strategic tool that helps presidents, who seek to limit the frequent involvement of parliaments through policy formulation, to fulfill their campaign promises without getting caught up in legislative bureaucracy (Deering & Maltzman, 1999). It is,

therefore, a constitutional authority that the presidents utilize to control informal rule-making (Rudalevige, 2012). One such directive is the executive order on the ease of doing business in Nigeria in 2017 (Offor et al, 2019). With specific directives to Nigerian ports, the ports were directed to blend all their operational activities into a sole station that operates a hybrid taskforce that supervises a timely submission of data extracted from the ports to the relevant authorities in Nigeria (Offor et al., 2019). Ndikom (2006) posited that delays in ports can be divided into the following categories of congestion: Ship/vessel type: Where vessels have already been berthed but have faced long delays due to the non-operational status of equipment and control, resulting in the vessel spending more time than needed at berths before being unloaded, thus increasing the waiting time for service.

Berthing capacity: This is one of the most serious types of port congestion/delays that occurs when there are inadequate berthing facilities as well as shore infrastructures for husbanding vessels. Vessels tend to stay at a specific berth for long periods without being discharged due to malfunctioning of the plants and equipment, which usually results in a multiplier effect of vessels

scaling at the ports to berthing, culminating in long waiting time. Oghojafor et al. (2012) argue that the directives demonstrate a high level of political and administrative willingness by the government to implement a system that will deliver an effective and efficient port system, such as reducing import documentation. Unfortunately, the so-called common examination of cargo from our ports by the multiplicity of cargo examiners has led to delays, as the importers and their agents often find ways to persuade freight forwarders to demand money. This is because the importer and his agents often look for additional funds to grease the palms of multiple security agencies.

Public-private partnership and the provision of Lekki port infrastructure in Nigeria's seaports.

Since the inception of the Nigerian Ports Authority (NPA) in 1956, Nigeria has been operating under the service port model. This model faced several challenges, which led to the idea of transitioning to the landlord port model, or port concession. Port reform was a top priority for the newly formed National Council for Privatization (NCP) after military rule ended in 1999. After extensive internal government consultation, the NCP requested the Public-Private Investment

Advisory Facility (PPIAF) funding for a study to develop a strategy for port sector reform for the Federal Ministry of Transport. The grant was approved in early 2001, and the Dutch maritime advisory firm, Royal Haskoning BV, was engaged. The study is known as the "Haskoning Study" (Leigland & Palsson, 2012). They concluded that the administration of the Nigerian ports was characterized by a usually high degree of centralization. Although the sector was supposed to be controlled by the state-owned Nigerian Port Authority, permission from either the president or the transport minister was required for virtually all major decisions. As a result, key decisions affecting both policy and operations in the sector slowed down virtually to a standstill. In addition, NPA was responsible for both the regulation of port operations as well as the day-to-day operational decisions themselves. The study also looked at the most popular alternatives to the government's port management model and recommended adopting the 'landlord' approach, where the public sector would be in charge of port planning and regulation (safety, security, and environmental) and would retain ownership of the port-related land and infrastructure. The private sector would then oversee marine and terminal

operations, construction, purchase, and ownership of the superstructure and equipment (Leigland & Palsson, 2012). As a result of this development, the terminals skyrocketed to twenty-six but were allocated to market speculators within the arrangement of the build, operate and transfer system (Ugboma & Oyesiku, 2020). Felsing (2011) posits that a concession arrangement transfers ownership of the services (operating, maintenance, collecting, managing, constructing, and rehabilitating the system) in the designated area to a concessionaire. However, the public sector still dominated in the ownership of these assets and determined the appraisal benchmarks expected from the vendors. Thus, the NPA's responsibility metamorphosed from serving as an entrepreneur to providing the regulatory mechanism for the success of the port sector. However, there are some disagreements on the extent to which the implementation of port reform has contributed to the improvement of port performance. Ircha (2001), Cullinane and Wang (2005) suggest that the improvements observed in the port sector were not necessarily the result of port privatization but rather a combination of several factors. Some analysts specifically believe that this public-private

partnership intervention in the provision and management of port infrastructure enhanced the performance of seaports in general. Ugboma and Oyesiku (2020) argue that since 2006, when private operators took over ports, there have been improvements in some aspects of port operations. For example, cargo throughput increased from 280k in 2006 to 545k in 2008, and vessel turnaround time has decreased from 170hrs to 59.4hrs. However, in most cases, ports cannot be said to operate at full capacity. As interesting as these narratives sound, there is a need to articulate the impact of the PIDF on port congestion and ageing infrastructure in Nigeria.

Methodology/theoretical framework

Drawing from the context of the study, which focuses on examining the impact of PIDF on the seaport infrastructure in Nigeria, ex-post-facto design is found more appropriate for the study. The choice of ex-post-facto is hinged on the need to predict the outcomes, assess past performance, and identify the underlying trends and patterns in government intervention in the seaport infrastructure. In this instance, the researchers relied on documentary data collection. A documentary method of data collection enabled the researchers to assess much of the secondary data relevant to the

study through the desk review and analysis of relevant scholarly material and institutional reports such as the publications of Nigeria Port Authority, National of Bureau of Statistics reports on shipping and port activities in Nigeria and data from World Port Congestion Index. The data generated in this research exercise is analyzed through content analysis and logical inferences. Charts, tables, figures, and graphs were used to illustrate the trends in seaport activities in Nigeria.

The study utilized the infrastructural development framework for its analysis. Infrastructure encompasses all essential elements and necessities for the smooth operation of the economy. According to Bueger and Edmunds (2017), it was Diamond and Spence (1978) who propounded the theory of infrastructural development. Infrastructure-based economic development, also called infrastructure-driven development, combines key policy characteristics inherited from Rooseveltian progressive tradition and neo-Keynesian economics in the United States as well as Singaporean and Chinese state capitalism. It holds that a substantial proportion of a nation's resources must systematically be directed towards long-term assets such as transportation,

energy, and social infrastructure in the name of long-term economic efficiency (stimulating growth in economically lagging regions and fostering technological innovation and social equity, ie, providing free education and affordable health care. According to Aschauer (1990), there is a strong relationship between investment in infrastructure and economic performance. This is because infrastructure investment not only increases the quality of life but also has a positive impact on both labour and multifactor productivity; the multifactor productivity encompasses the variability in the output function not directly caused by the inputs, private and public capital. He, therefore, noted that the impact of infrastructure investment on multifactor productivity is important because the higher the multifactor productivity, the higher the economic output and the higher the growth.

The major claim of these authors is that politics does not evolve outside of infrastructure, as it is deeply inscribed in it. These scholars claim that infrastructure acts in political ways. For instance, Ramirez (1999) claims that public policies aimed at both national and regional growth help to create an environment that enhances productivity,

and a crucial method to achieve this aim involves allocating resources to transport infrastructure, as transportation plays a significant role in economic expansion by facilitating communication, commerce, and progress.

The following are the major assumptions of the theory:

- Infrastructure improves productivity
- The political system operates in interdependent forms
- The provision of critical infrastructure should not be left to private organizations, but the state should be a major provider of it.
- Transportation is one of the cardinal aspects of the infrastructure that drives the national economy and should not be neglected.

Application of the theory

The infrastructural development theory elucidates the rationale behind the federal government's interventions in the provision of seaport infrastructure, especially in the development of the Lekki Deep-sea port. Due to the centrality of the port infrastructure to the federal government, the Nigerian Port Authority

(NPA), a federal government agency, governs and operates the ports of Nigeria. The major ports controlled by NPA include the Lagos port complex, Tin Can Island port in Lagos, Calabar port, Delta port, Rivers port at Port Harcourt and Onne port. Operations of the NPA are carried out in affiliation with the presidency of Nigeria and the Nigerian Shippers 'Council. One of the assumptions of the infrastructure development theory is that investment in the transport infrastructure enhances productivity. With specific reference to the seaport in Nigeria, stakeholders in the port industry in Nigeria earmarked port reform as a top priority for the newly formed National Council for Privatization (NCP) after military rule ended in 1999. After extensive interest articulation and aggregation among all the stakeholders, the NCP requested the Public-Private Investment Advisory Facility (PPIAF) funding for a study to develop a strategy for port sector reform for the Federal Ministry of Transport. The grant was approved in early 2001, and the Dutch maritime advisory firm, Royal Haskoning BV, was engaged. The study is known as the "Haskoning Study" (Arif, 2002). They concluded that the administration of the Nigerian ports was characterized by a usually high degree of centralization. The

National Assembly, which converted these interest aggregations, came up with the concessions programme, which was aimed at promoting efficiency through public and private partnerships. This landlord arrangement, as it is called, has fostered better relationships and a high turn-out of goods and services in and around the Nigerian port system, either in the Eastern or the ever-busy western zone.

Empirical verification of the impact of PIDF on the improvement of seaport infrastructure in Nigeria

The empirical verification of the hypotheses which stated that the federal government's establishment of the Presidential Infrastructure Development Fund (PIDF) tended to enhance the decongestion of ports in Nigeria and that the public-private partnership intervention in the provision of port facilities tended to enhance the building of new deep-sea ports in Nigeria were carried out using a combination of the various units of analysis inherent in the major indicators of both the independent variable and the dependent variable. The hypotheses were therefore tested under the following headings:

- ❖ The public-private financing and the development of new deep-sea ports in Nigeria
- ❖ Construction of Inland dry ports and port decongestion in Nigeria

The public-private financing and the development of new deep-sea ports in Nigeria

Before the federal government introduced the idea of deep-sea ports, Nigeria had relied on river ports, which were created in the 1950s, since the adoption and creation of several ports in Nigeria, beginning with the ports in the Lagos area. Administrators in Nigeria had been slow with the creation of deep-sea ports. Factors such as financial, political, and social concerns have been responsible for the slow activities in that aspect. Given the absence of deep-sea ports in Nigeria, it had always depended solely on river ports with shallow drafts that could not accommodate vessels, contrary to the international trend. Given the benefits of the deep-sea ports, the federal government under the PIDF decided to make an intervention in the provision of deep-sea ports through public-private sponsorship. For instance, the building of Lekki Deep-sea Port was facilitated by the public-private partnership (see Tables I & II for the differentiation in the old and new port terminal capacity in Nigeria).

Table I: The number of Nigeria's older ports and their terminal capacities

Names of Port	Location	Geopolitical Zones	Terminals
Lagos	Lagos state	South-West	Five private terminals operated by AP Moller, ENL Consortium Limited, Apapa Bulk Terminal, Greenview Development Nigeria Ltd and Lilypond Inland Terminal.
Tin Can Island	Lagos state	South-West	Consortium made of Bollore ports and the Chinese partnership comprising the China Merchants Holding International and China Africa Development Fund.
Delta Port	Delta state	South-South	
Port Harcourt/ Rivers Port	River's state	South-South	BUA terminal
Onne Port	River State	South-South	It has three terminals operated by private companies such as Brawal, the INTELS terminal and the West Africa Container Terminal.
Calabar Port	Cross River	South- South	consists of three terminals operated by ECM Terminal Ltd, INTELS Nigeria Ltd and Shoreline Logistics Nigeria Limited.

Note: Prepared by the authors from the Nigeria Port Authority (2021).

Table II: New deep-sea ports

Names	Terminal capacity	Stage	Location
Lekki Deep-sea Port	Can handle 2.5 million twenty-foot standard containers per year	Completed	Lagos state
Badagry Deep-sea Port	500,000per annum and a 100,000 DWT general cargo berth	Work still ongoing	Lagos state
Ondo Deep-sea Port	13,000	Work still ongoing	Ondo state
Ibom Deep-sea Port		Work still ongoing	Akwa Ibom state
Bonny Deep-sea Port	500,000per annum and a 100,000 DWT general cargo berth	Work still ongoing	River State

Note: Prepared by the authors of the Nigeria Port Authority (2023)

Tables 1 and 2 show that prior to the establishment of Lekki Deep-sea Port and other surrounding ports, Nigeria had six (6) viable operating ports. While 2 ports

are located in the western geopolitical zones, four are located in the southern geopolitical zone. It is also notable that while Lagos has five terminals and

operated by privately oriented individuals such as AP Moller, ENL Consortium Limited, Apapa Bulk Terminal, Greenview Development Nigeria Ltd and Lilypond Inland Terminal, and other consortiums made of Bollore ports and the Chinese partnership comprising the China Merchants Holding International and China Africa Development Fund. In Delta state, One and Calabar ports have had terminals operated by private companies such as Brawal, the INTELS terminal and the West Africa Container Terminal as well as ECM Terminal Ltd, INTELS Nigeria Ltd and Shoreline Logistics Nigeria Limited. But as can be seen in Table 2, the newly built deep-sea ports in Lagos can handle 2.5 million twenty-foot standard containers per year, far different from all the aforementioned ports. This will amount to an increase in the generation of foreign currency in Nigeria. By the time the Badagary, Ondo, Ibom, and Bonny Deep-sea Ports are completed, with a combined more than one million five hundred containers carrying capacity annually, Nigeria's ports would have been deeply positioned to compete favourably with other international ports. It is very important to note that the idea of Lekki

Seaport was conceived and initiated by the former Governor of Lagos State and was supported by the subsequent administrations in the state and the federal government of Nigeria.

The Lekki-Epe Express Toll Road

In an attempt to further enhance the efficiency of the Lekki Deep-sea Port, there was also an agreement to build the Lekki-Epe Express Toll Road. Therefore, in 2006, the Lagos State Government (LSG) granted a 30-year lease to the Lekki Concession Company Limited (LCC) for the operation of the Lekki-Epe Expressway Toll Road. The first phase of this expressway, also referred to as the Eti-Osa Lekki-Epe Expressway and the Lagos Infrastructure Project, was completed as a 49.4 km dual carriageway road. It features three lanes in each direction and spans a significant portion of the Lekki-Epe peninsula in eastern Lagos. The expressway then transitions to a single-lane road eastward for an additional 15 km until it reaches the town of Epe. Along this stretch are grade intersections, essentially roundabouts located within the leased area (see Table 4 for a detailed project explanation).

Table III (a): Financing for Lekki-Epe Toll Road

<i>Investor</i>	<i>Finance (Naira bn.)</i>	<i>Tenor (years)</i>	<i>Rate</i>	<i>Type</i>
EQUITY				
AIIM	7.9	-	-	-
DEBT				
Lagos State Government	5.0	20	Fixed	Mezzanine
AfDB	10.0	15	Floating	Senior
Local lender syndicate	12.9	12	Floating	Senior
Standard Bank	11.0	15	Fixed	Senior
TOTAL	38.9	-	-	-
TOTAL FINANCE	46.8	-	-	-

Note: World Bank (2014)

Table III (b): The financing of Lekki-Epe Toll Road

Type	Source
Government (42.5m) 11%	Mezzanine, \$42.5m: Lagos State Government, 20 years
DFI US\$85m, 21%	Debt, US\$85m: AfDB, fifteen years senior debt
Private US\$270.4m, 68%	Local debt, US\$109.7m equivalent: US\$79.9m from First Bank of Nigeria and United Bank for Africa (12-year note issuance facility), remainder (US\$29.8m) from a consortium of Zenith Bank, First Inland Bank, Diamond Bank, and Fidelity Bank

	<ul style="list-style-type: none"> • International debt, US\$93.5m: Standard Bank London, sole arranger of the international tranche, which is underwritten by Standard Bank London and Stanbic (fifteen years). • Equity, US\$67.2m: US\$58.9m (NGN 6.93bn) held by a consortium of: Asset & Resource Management Co Ltd (ARM); Africa Infrastructure Investment Fund (AIIF); Larue Projects and Hi-Tech Construction. Remaining US\$8.3m unknown
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Note: DFID (2015)

As can be observed from Table 4b, the public partnership in the road construction manifested in the areas of cooperation among the Lagos state government, African Development Bank, local lender syndicates, and international banks such as the Standard Bank. Table 4b also shows the diversification of the financial sources that emerged as DFID and other international financial actors that participated in the road project. The Lekki-Epe toll road was the first PPP deal to achieve financial close in the roads sub-sector. The project was successful in attracting \$290m of private investment from both local and international investors. This included the ability to attract long-term loans in local currency (twelve years) from the commercial

sector. It received a loan of \$80m from First Bank of Nigeria. The Lekki Concession Company (LCC) was able to obtain long-term loans for the project because it received a full federal guarantee for the project and in addition to a long-term loan from AFDB. In addition, given the pioneering nature of the deal, the LCC had to take additional risks to attract financing for the project. They started the construction on 4km of the project, having only received partial financing from local banks. When the abridged work programme was completed, they were then able to obtain financing for the full construction programme. This was a risky approach as it was possible that they would not be able to agree on the longer-term

financing needed for the full project. The LCC, together with Lagos state, decided that they had to do this because there was a lot of scepticism about the project ever going ahead. They also believed that kicking off the project and getting it to a level of visible progress could attract further finance. The LCC were able to adopt this approach because they received an approximate of \$32.5m guarantee from Lagos state for the abridged work programme (SSATP, 2014).

The construction of the Ibom and Badagry Deep-sea Port

Apart from the Lekki Deep-sea Port, the PIDF was also responsible for the building of the Ibom and Badagry Deep-sea Ports. The arrangement is that the Ibom Seaport is co-owned by the federal government of Nigeria, the public-private partnership, and the government of Akwa-Ibom state. The Ibom Deep-sea Port occupies 2,565Ha of land area of the 14,517Ha available for the industrial project. The approximate location of the project site is scaled from the British Admiralty Chart No.138, Latitude 0432 N: Longitude 0801407 E (NPA, 2016). In a related development, the Badagry Deep-sea Port project was executed through PPP, comprising the Federal Ministry of Transportation, Federal Ministry of Trade and Investment, the Lagos state

government, a private Consortium of APT of terminals, Ocean Investments, Oando, and Terminal Investment Ltd.

To show the effectiveness of the newly constructed deep-sea ports. This development has no doubt translated into the improved terminal performance of the port. Talley (2006) observed that port performance is measured by evaluating the technical efficiency and effectiveness of the port. Generally, a container terminal's ultimate goal is to manage vessels at the berth, unload incoming containers, load outgoing containers, manage storage yards, coordinate berthing time, manage the resources needed to handle the workload, manage waiting time for customer trucks, reduce congestion on roads, at storage blocks and docks. All of these activities work together to improve port efficiency with implications for the local and global freight transport system economy (Tongzon & Heng, 2005). With the building of rail links around ports in Nigeria such as Apapa, Tin Can, Warri, Onne, and Calabar ports, there has been a significant improvement in the average turnaround time, the waiting time for the cargo to berth, and the overall quality of the port index in Nigeria (see Table 5 for a clearer picture of the trends).

Table IV: Trends in terminal performance of Nigeria Port 2000–2023

Year	Ship Turnaround Time (Days) STT	Average Time Awaiting Berth	Quality of port infrastructure index
2000	7.01	0.3	0
2001	7.91	1.27	0
2002	11.34	3.99	0
2003	7.89	2.17	0
2004	6.44	1.44	0
2005	7.4	2.6	0
2006	5.31	1.05	0
2007	3.75	0.36	3.5
2008	4.59	1.01	2.69
2009	6.55	1.95	2.62
2010	5.38	1.11	2.8
2011	5.48	1.21	2.98
2012	5.75	1.71	3.31
2013	4.99	1.2	3.55
2014	4.3	1.4	3.44
2015	4.2	1.4	3.16
2016	3.9	1.9	2.98
2017	4.7	0.9	2.8
2018	4.3	1.4	2.8
2019	4.3	1.4	2.5
2020	3.3	2.1	2.4
2021	3.0	3.2	2.0
2022	2.7	4.0	2.0
2023	2.8	5.1	2.0

Note: Olufemi et al. (2021 & NPA, 2023).

The above table contains data on the ship turnaround time, the average waiting time for berth, and the quality of the port index. The average turnaround time is the difference between the date of departure and the date of arrival of all the container vessels calling at the port (or country), within one month of each call. The unit of measure is the days per call. The trend of the average ship turnaround time shows that there were fluctuations between the years 2000 and 2019. There was a steady increase in the average turnaround time between 2000 and 2002. It was during these periods that the average turnaround time reached its highest point of 11.34 days in the year 2002. Average turnaround time decreased after the peak period of 2002. In particular, after the procession in 2006, average turnaround time decreased at a decreasing rate. It can be concluded that the average time of departure and the average time of arrival of all container vessels calling the Nigerian ports within 1 month of navigation improved significantly after the port concession. To be more precise, the average time for vessels, which usually takes between 7 to 11 days before port concession, now stands at between 3 to 6 days. However, from 2018 onwards and specifically from 2020, when the

implementation of PIDF has yielded adequate fruits, there is a significant improvement in both the departure time and arrival of containers.

The waiting time for a berth is the time vessels wait at sea for the green light to be given by the pilot to enter ports. Once a vessel arrives at the docks to unload the cargo, it can be said that the vessel has been berthed. If there is more congestion in a port, the arriving vessel may have to wait for a long period to get berthed. The data for average waiting time for berth from 2000–2019 shows that the time vessels waited at sea for the green light to be taken by a pilot to ports increased steadily between the years 2000, 20001, and 2002. Thus in 2000 and 2005, the average awaiting at berth stood between 0 and 3 days between the years 2000 and 2005 which coincided with the pre-concession of Nigerian ports. Still, from the year 2006 to 2019, the average waiting time for a berth stood between 0 and 1 day. Nevertheless, it is surprising that instead of the waiting days coming down as a result of the provision of rail links, it is going higher between 2019 and 2023. Experts in the maritime sector have linked this development to the lingering scarcity of dollars in Nigeria, which is hampering the entire economy (Punch Newspaper, 2024). A more important

development gleaned from the above table is the overall improvement in the quality of the port index in Nigeria.

Construction of an inland dry port and port decongestion in Nigeria

Port congestion is a term used to describe various barriers that impede the efficient movement of goods and people through and out of a port. It can be within the port itself or in surrounding areas. Congestion can lead to long wait times for ships attempting to dock, as well as delays for trucks involved in haulage operations. Port congestion also includes obstructions at the wharves or terminals during the berthing and offloading process. The main cause of port congestion is a large number of commercial vessels queuing at anchorage to offload and transload cargo. The impact of port congestion on a country's economy and reputation cannot be overstated. Gidado (2015) identified the following core elements of port congestion:

- ❖ Ship berth congestion: Ship berth congestion occurs when the available berths designated for ship docking have reached their maximum capacity. It arises from the clustering of ships waiting to enter the ports, resulting in limited berthing options.
- ❖ Ship work congestion: Ship work congestion arises from inadequacies or procedural lapses in port operations. Delays occur during loading, offloading, and sometimes transloading of cargoes and shipments. These delays increase the time ships spend at ports to complete their cargo operations.
- ❖ Vehicle gate congestion: Vehicle gate congestion occurs due to a lack of or inadequate provision for intermodal infrastructure to and from the ports. This leads to long queues of trucks attempting to access or leave the ports, causing congestion at port gates and on port access roads.
- ❖ Vehicle work congestion: Vehicle work congestion arises from deficiencies in truck stacking and unloading within the port premises. Insufficient or malfunctioning equipment can cause avoidable delays and congestion in the process.
- ❖ Cargo stack congestion: Cargo stack congestion arises when cargoes remain at storage areas within ports for extended periods beyond reasonable limits. This can occur due to inefficiencies in cargo handling processes or delays in clearing customs procedures.

- ❖ Ship entry/exit route congestion: Ship entry/exit route congestion is caused by blockades on the access routes to port facilities. Maritime accidents, towage or salvage activities, wrecks, and other factors can result in queuing, clustering, and delays for ships, ultimately leading to port congestion.

To address these congestions, the Ministry of Transport, in partnership with the Nigeria Shippers' Council, established for the first time inland dry ports in Kaduna and six inland container depots in

Oyo, Abia, Kano, Kaduna, Jos, and Borno States to reduce congestion. The Inland Dry (IDP) ports across the country were facilitated based on Build, Own, Operate, and Transfer (BOOT) under the Public Private Partnership (PPP) agreement. The IDP, being an equivalent of a seaport located in the hinterland, receives containers by rail or road from the seaport for examination and clearance by customs and other authorized agencies. It has all the loading and off-loading equipment needed to handle containers (see Table 1 for clarification).

Table V: Development and capacities of inland dry ports in Nigeria

S/N	State	Capacity	Concessionaire	State of operation	Source
1	Erunm, Oyo state	50,000 TUEs	Catamaran logistics LTD	completed	Nig Shp council, 2023
2	Isi-Alangwa, Abia state	50,000, TUEs	Eastgate LTD	completed	Nig Shp council, 2023
3	Helpang, Jos, Pleatue state	20,000, TUEs	DUNCAN Maritime LTD	completed	Nig Shp council, 2023
4	Zawachiki, Dala, Kano state	20,000, TUEs	Dala Inland dry port	completed	Nig Shp council, 2023
5	Zanfarawa, Funtua-Katsina state	10,000, TUEs	Equatorial Marine Oil & Gas LTD	completed	Nig Shp council, 2023
6	Jauri, Maiduguri-Borno state	10,000, TUEs	gfo Nig.LTD	completed	Nig Shp council, 2023

7	Kaduna Inland Dry Port	5,000, TUEs	Inland Container Nigeria LTD (ICNL)	completed	Nig Shp council, 2023
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Note: Prepared by the authors from the Nigeria Shippers Council Annual Report (2023)

This development has no doubt translated into the improved terminal performance of the port. Talley (2006) observed that port performance is measured by evaluating the technical efficiency and effectiveness of the port. Generally, a container terminal's ultimate goal is to manage vessels at the berth, unload incoming containers, load outgoing containers, manage storage yards, coordinate berthing time, manage the resources needed to handle the workload, manage waiting time for customer trucks, reduce congestion on roads, at storage blocks and docks All of these activities work together to improve port efficiency with implications for the local and global freight transport system economy (Armando & Francesco, 2010). With the building of rail links around ports in Nigeria, such as Apapa, Tin Can, Warri, Onne, and Calabar ports, there has been a significant improvement in the average turnaround time, the waiting time for the cargo to berth, and the overall quality of the port index in Nigeria.

Conclusion

The study was guided by the hypotheses, which state that the federal government's establishment of the Presidential Infrastructure Development Fund (PIDF) has enhanced the decongestion of ports in Nigeria and that the public-private partnership intervention in the provision of port facilities enhances the building of new deep-sea ports in Nigeria within the time studied. In light of the data generated and presented in the studies, the hypotheses were upheld. This is because apart from the Inland dry port's role in the decongestions of the seaports and the contributions of the new deep-sea ports in the generation of revenue as well as decongestion of the seaports in Nigeria, the intervention specifically ensured that Nigeria's ranking in the quality of seaport index got improved within the years this study covered. It was the PIDF that led to the building of different kinds of Inland dry ports, container ports, and new deep-sea ports in Nigeria through partnership with the private sector. Following the above

developments, we make the following recommendation to the attention of policymakers:

- The Nigerian Legislators should reinforce the PIDF by strengthening its legal framework. This can be achieved by making laws that will ensure its sustainability.
- The public-private partnership has come to stay. It has also yielded enormous positive results. The federal government should continue to exploit more and more of the public-private partnership so that more and new deep-sea ports will be provided.

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