Assessment of Sustainable Inland Water Transportation in Lagos State, Nigeria.

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ABSTRACT

Assessment of sustainable inland water transportation in Lagos state, Nigeria is a critical area of research that provides insights for improving safety, enhancing user confidence, and promoting sustainable transport solutions. Water transport being among the oldest mode of transport is crucial to the development of any nation and this is very crucial to Lagos state because of its abundant water. It provides means of transportation for both rural and urban dwellers in Lagos, particularly along the coastal areas and inland waterways. It is a known fact that water transportation has been neglected for a long period by both the government and the private sector, particularly in the area of safety of passengers on Lagos waters. This study however assess inland water transportation in Lagos state and its impact. Inland waterways are made up of navigable rivers, lakes, coastal creeks, lagoons and canals and advantageous in terms of cost of moving heavy freight. The aim of this research is to assess the complimentary role of water transportation to commuters travelling in Lagos metropolis. The study concluded that despite the major operational difficulties faced by boat owners and operators, there is still a sizable amount of passenger traffic in this type of water transportation. According to the study, government and private boat operators should offer sufficient covered speed boats and safety vests for all users, as well as a boat repair facility, intermittent dredging of waterways, the removal of wrecks and water hyacinths, stabilization of transportation costs, , and speed limiter devices.

Keywords: Transportation, Inland waterways, Boat, Creeks, Lagoon

INTRODUCTION

The development of transportation and improvements in the various modes have impacted not only economic and socio-cultural activities, but also played a major role in spatial organization, spatial ordering and spatial process. Inland Waterways Transport (IWT) involves moving people and goods along waterways. Inland waterway transportation plays an essential role in the developing nations socio-economically. Inland waterways in Lagos metropolis comprise navigable rivers, coastal creeks, canals and lagoons. Statistics from the National Inland Waterways Authority (NIWA) show that 22 out of 36 states in Nigeria use water as a type of transportation (Adejare, 2011). This shows that water transportation has come to occupy a strategic place in the economy of the nation, especially with the intricacies of road transportation. However, water transport is the second distant to road transportation with about 1.6 per cent of Nigeria's gross domestic product (NBS, 2014). This is because of the low investment in water transportation infrastructure and lack of proper policy to regulate the mode.

Water transportation has suffered serious human capacity and serious infrastructure neglect, a situation that propelled boat mishaps and increased fatality rate on Lagos water. Lagos State Waterways Authority (LASWA), the agency saddled with the responsibility of managing the water ways, has been under-funded and mismanaged. There is no regular monitoring of water ways, use of obsolete equipment and staff are not equipped with the requisite skills to man the facilities. As a result of the inefficiency in management and personnel, the water is no longer safe for the movement of people and goods; many people have lost their lives and goods to boat mishaps in recent times.

The dangerous nature of water transportation in Lagos also included the ignorance of boat riders and passengers on safety measures, which has proven to be worse. For example, boat riders rely on their over-rated knowledge

of the water ways to convey passengers and goods to different destinations without adequate training and certification in safety measures and navigational techniques (Adeyemo, 2010). Also, the boat riders do not always follow the required maximum loading capacity of their boats and they usually overload their boats with goods and passengers, a situation that compounds incidents of boat mishap. The transportation of goods and services along inland waterways is considered one of the oldest means of transporting goods and services from point to point. This is attributed to due to its ability to offers the most economical, energy efficient and environmental friendly means of transporting all types of cargo from place to place, and it also safer and cheaper in areas where water exist naturally, as it facilitates commerce, wealth creation, alleviation of poverty, and job creation for youth within such locality. It also generates employment for the boat building industry through active engagement of the youths in welding and fabrication process. Furthermore, terminals are the prestige buildings and prestige architectural commissions of our time with most of its structure and relevance valued as 'priceless' and as such no expense should be spared either in the design, construction, renovation or maintenance. They are fast assuming a role in the community that is equivalent to shopping malls, or recreational parks and serve as answers to lifelong mobility and trade within Lagos state (Nyorere, 2012). The concerns about terminals especially in Ikorodu and Marina areas of Lagos state have been that of preservation, maintenance and promotion of its ever-increasing demands.

It cannot be over emphasized that transportation is an integral part of human activity thus forms the basis for all socio-economic interactions, indeed no two locations can interact effectively without a viable means of movement. An efficient, reliable and safe transport is pivotal to economic growth and development. Transportation is the main artery via which the economy of any nation flows and its development is one of the most indispensable enzymes necessary for the activation of economic, socio - political and strategic development of a nation. This goes on to say that the development of an efficient, safe and dynamic transport system is vital for a meaningful and sustainable social, economic growth and development of a nation (Bhadmus, 2013). More so, since transport as an economic function enhances the productive use of human and material resources, it therefore creates the utility of place and time and thereby ensuring that goods and services are moved promptly seamlessly and safely.

Statement of the Problem

According to the Lagos Metropolitan Area Transport Authority (LAMATA, 2018) Lagos is the sixth largest city and one of the most rapidly urbanizing metropolitan areas in the world. Its population is estimated at between 20 and 22 million inhabitants. Over the years in Lagos state, population expansion has been regarded as a cause of road traffic congestion in metropolitan Lagos. Ironically, the construction of new roads and expansion of old ones by successive administrations in Lagos has not been able to ameliorate the road traffic congestion. Inland water transportation plays a vital role in the transportation system of Lagos State, Nigeria, with millions of people relying on it as a means of commuting to work, school, and other destinations (Chukwuma, 2014). However, the safety of inland water transportation in Lagos State has become a major concern in recent years. The frequency of boat accidents, capsizing, and drowning incidents has increased, resulting in loss of lives and property.

Commuting within Lagos sometimes takes double or triple the normal time, thereby inhibiting economic development and quality of life in the city. Movements in the state mostly road-based accounting for 97% even though there are provisions for other modes like rail and water, but most of the attention is concentrated on the road, so there is need to diversify Lagos transport modes and encourage modal choice for passengers in order to reduce the pressure on the road. For instance, water transportation is a realistic and considerable option in the state, since Lagos has abundant water bodies that could be utilized to offer fast, safe, comfortable and cheaper means of transportation (Eboli, 2011). In comparison with other major urban development's near or situated close to the sea or river and lagoon systems, the water transport in Lagos is under-utilized which is well below 1%. The state government has however made it its policy to rapidly develop the water transportation routes in the state in order to arrest the decline in the quality of life in Lagos and also sustain economic development in the state and the country at large. The state government has made significant investment in water transport in order to reduce congestion on Lagos Road, but the impact is too significant as the infrastructure and the capacity to manage the water resources to optimize sustainable growth and provide reliable water services is not suffice (Ezenwaji, 2010). It is against this backdrop that this study intends to address the complimentary role of water transport to road travel within Lagos metropolis, Nigeria.

Despite the importance of inland water transportation, there is a lack of comprehensive research on the safety perception of users in Lagos State. The existing literature focuses mainly on the technical aspects of inland water transportation safety, such as vessel design and maintenance, navigation, and environmental factors. However, the human factor, which is critical to safety, has been largely overlooked. Safety perception is a crucial aspect of inland water transportation, as it influences users' behavior and decision-making. If users perceive inland water transportation as unsafe, they may opt for alternative modes of transportation, leading to reduced patronage and revenue loss for operators (Fellinda, 2006). Furthermore, a negative safety perception can also impact the overall economic development of Lagos State, as inland water transportation plays a significant role in the state's transportation system. The lack of research on safety perception in inland water transportation in Lagos State is a significant knowledge gap that needs to be addressed. This study aims to fill this gap by assessing the safety perception of inland water transportation users in Lagos State. Specifically, the study will investigate the factors that influence safety perception, the level of satisfaction with safety measures, and the impact of safety perception on users' behavior and decision-making. Lagos State, a megacity grappling with a severe transportation crisis, presents a compelling case for investigating the potential of sustainable water transportation. While road-based transport dominates, resulting in debilitating congestion, air pollution, and reduced quality of life, Lagos possesses extensive waterways, offering a viable yet underutilised alternative. Historically, these waterways were crucial for connectivity, but a complex interplay of factors has hampered their potential. A primary issue is the inadequate and ageing water transport infrastructure, including dilapidated jetties, insufficient terminals, and an ageing fleet of boats.

Conceptual review

The concept of inland waterways

Inland waterways refer to the navigable waters within a country, including rivers, lakes, canals, and bays, that are used for transportation and commerce. These systems consist of both natural rivers and artificial channels, serving as crucial links between different regions and including necessary ports for docking. A waterway is any navigable body of water. Broad distinctions are useful to avoid ambiguity, and disambiguation will be of varying importance depending on the nuance of the equivalent word in other ways (Gray, 2002). A first distinction is necessary between maritime shipping routes and waterways used by inland water craft. Maritime shipping routes across oceans and seas, and some lakes, where navigability is assumed, and no engineering is required, except to provide the draft for deep-sea shipping to approach seaports (channels), or to provide a short cut across an isthmus; this is the function of ship canals. Dredged channels in the sea are not usually described as waterways. There is an exception to this initial distinction, essentially for legal purposes, see under international waters.

Water transportation is critical in Lagos State’s overall transport system, offering an alternative to the highly congested road network. As a coastal city with a vast network of lagoons and creeks, Lagos has significant potential for sustainable water transportation. Sustainable transport refers to a system that is environmentally friendly, economically viable, and socially inclusive (Banister, 2008). Lagos State has tried to improve water transport through investments in ferry services, terminals, and safety measures. However, several challenges persist, including inadequate infrastructure, pollution, and safety concerns. Addressing these challenges requires strategic policies, investment in modern vessels, and improved regulation to enhance efficiency and sustainability.

Inland Waterway System in Lagos State

The history of ferry service in Lagos State can be traced to the years when Lagos was still the federal capital. Then the Federal Inland Revenue Service (FIRS) operated ferry services to Apapa, CMS, Ebute Ero and other locations. Later, the state government under the Lateef Jakande administration also came up with its ferry service when it purchased its ferry boats “Baba Kekere” and “Ita Faji”. The Ferry Services Corporation was established to run the service. The effective and efficient service run by the corporation has continued to be a reference point in the state well over 25 years after (Obed, 2013). The State Ferry Service Corporation is no more in operation as the National Inland Waterways Authority Act (Repeal) Law 2008 created the Lagos State Waterways Authority, which is already functional with a supervisory board inaugurated by Governor Babatunde Fashola to

monitor the private operators and ensure they operate within the provisions of the Inland Waterways Law.

The potential of coastal inland waterways as an alternate and complementary medium for trade, transportation, and tourism as well as an amenity for local communities, creating jobs and generating income for the government and operators. Due to the simplicity of shipping raw materials and manufacturing equipment to the site for industrial location, the south-west coastal waterways have significant potential for nature conservation. Additionally, the industrial archaeology of the waterways is growing in popularity among foreign investors in the export processing zone along the coastal water. These activities recognise the shifting usage of the coastal inland waterways, highlighting the need for a broader focus in canal development planning. A platform that will allow for private and public discussion on collaboration in some areas of inland waterways finance, utilisation, and preservation is necessary (Obeta, 2014). Since there would be a process of consultation with the communities, users, operator, and government, development and management would establish rules and regulations to guide the association or body and management, a method for the monitoring should be erected to make predictions about the future. Since inland waterways were probably one of the cross-border entities (managing bodies), they needed to have important information that would improve management of the waterways and make a difference in the assessment of the procedure that had been followed.

The ferry operation along the Ikorodu-Marina corridor began at the end of February 2009 but was actually commissioned by Governor Fashola on April 21, 2009. As in most of its developmental projects, the state government partnered with the private sector operators such as National Association of Tourist Boat Operators and Water Transportation (NATBOWAT) to actualize the noble vision for the transport sector. The nature of the partnership was that the state government created an enabling environment while the private sector provided the necessary infrastructure in terms of jetties terminal, ferries, etc., as well as engaged in public enlightenment campaigns and generally creates the environment that will make people comfortable with water transportation. Transportation by water has been one of the major means of inter-state movement in Lagos State. The most used water automobile for this movement is the ferry system. Ferry system involves the use of large vessels such as pontoons, launches (consisting of one or more decks) and other passenger catamarans for transporting persons and goods on water (Ojile, 2006). The Lagos State Government over the years has been responsible for the development of terminals for ferries and other water transportation systems. This section of the state's transportation sector yields a reasonable amount of revenue to the government by the way of transport fare and sales of tickets; and this basically forms the basis for the government's direct handling of its administration and revenue management.

The Lagos State Government presently allows the use of speed boats and few pontoons for water transportation service from the Marina ferry terminal to Mile II (though Mile II is presently out of service) and its environment and to Apapa and Osborne respectively. Presently, the marina ferry terminal serves as the main administration and maintenance service Centre for all; government vessels which usually leave the base daily to other creeks in Mile II, Badagry, Ibeshe etc. These vessels then join other owned by private entrepreneurs for trips to other riverine areas and back. At the end of each day's business, government vessels such as Oge and Ita Faaji return to Marina terminal where they are anchored till the next journey. Charter services are also operated in Lagos State ferry transportation system making it possible for any vessel to ply other routes not designated for it (Olubumehin, 2012). The merits of water-based travel are numerous. It is familiar, accessible, relatively cheap and convenient. Hence providing a transport system that is effective and seamless while serving local needs

In Nigeria, Ezenwaji (2010) noted that inland waterways transverse 20 out of the 36 states within the nation and that areas adjacent to the navigable rivers represents the nations' most important agricultural and mining regions. The direct impact of IWT, for instance, was highlighted for the deltaic areas of southern Nigeria by Abubakar (2002) who noted that IWT is very vital and critical for all facets of development in the region. Gray (2006) also noted that about 48% of all the rural residents in the region live in remote, isolated and inaccessible communities with no motorable roads and another 29% live in communities with limited services. For such people IWT is absolutely imperative for survival and for accessing social services-education, health etc. Recently, Obed, (2013) lamented that there has been a considerable decline in the use of IWT in Nigeria. This was attributed to several physical constraints impending growth and performance in the IWT sector in Nigeria. This creates an urgent need for innovative actions and strategies which can radically improve the sector so that it continues to remain the bedrock of trade, industrial and economic growth.

Lagos State Transportation Policy

Policy and regulatory frameworks play a crucial role in ensuring the sustainability of water transportation in Lagos. The Lagos State Waterways Authority (LASWA) regulates and promotes safe and efficient water transport. However, enforcing safety regulations, environmental standards, and integration with other transport modes remains weak. A sustainable future for water transportation in Lagos requires improved infrastructure, enhanced safety measures, and a shift towards eco-friendly technologies such as electric or hybrid-powered ferries. Additionally, increased public awareness and incentives for private sector participation can drive long-term improvements. In conclusion, while Lagos has significant potential for sustainable water transport, achieving it requires holistic planning, investment, and policy implementation.

Corruption and lack of transparency in project execution pose further obstacles. Moreover, inadequate maintenance of existing infrastructure, coupled with a lack of effective enforcement of traffic regulations, continues to undermine the effectiveness of the transportation policy. While Lagos State's transportation policy demonstrates strategic foresight, its success hinges on addressing internal weaknesses and mitigating external threats. A holistic approach, emphasizing efficient implementation, data-driven decision-making, and robust governance, is crucial for achieving sustainable transportation solutions in this rapidly growing urban environment (Aluko, 2010). A key component of the state's strategy is the development of integrated transport infrastructure. Initiatives like the Lagos Rail Mass Transit (LRMT) project, outlined in the Lagos State Transport Master Plan (LSTMP) (Lagos State Government, 2012), aim to reduce reliance on road transport by providing efficient and affordable rail alternatives. Similarly, the Bus Rapid Transit (BRT) system, implemented under the Bus Reform Initiative, provides dedicated bus lanes and higher-capacity vehicles, improving journey times along key corridors (Ojekunle, 2010). Beyond infrastructure, regulatory frameworks play a vital role. The Lagos State Traffic Management Authority (LASTMA), established by law, enforces traffic regulations and manages traffic flow, although its effectiveness is often debated. Furthermore, the government actively promotes alternative modes of transport, such as waterways, through initiatives like the Lagos Ferry Services (LAGFERRY), contributing to a more diversified transport network.

Methods of data collection

The information acquired for this investigation was explained using descriptive qualitative analysis. It is theoretical and provides a thorough explanation and illustrative description. The study uses mainly secondary data since it provides insights on intelligence gathering as a tool for crime management. Data is analysed using interview, content analysis with thematic analysis. This method was applied because of the nature and composition of present Inland water ways system in Lagos.

Theoretical framework

System Theory

Systems theory is the study of coherent collections of interconnected, interdependent components, whether natural or artificial. Every system has causal boundaries, is influenced by its surroundings, characterized by its structure, function, and role, and manifested by its interactions with other systems. A system is "more than the sum of its parts" when it exhibits synergy or emergent behaviour. Changes to one component of a system may have an impact on other components or the entire system. These shifts in behavioural patterns may be predictable. For systems that learn and adapt, the degree of development and adaptation is determined by how well the system interacts with its environment and other circumstances that influence its organization.

In order to keep the other system from failing, some systems maintain it. In order to achieve optimized, systems theory aims to model the dynamics, constraints, conditions, and relations of a system and to clarify principles (such as goal, measure, methods, and tools) that can be identified and applied to other systems at every level of nesting and in a variety of fields. Instead of creating concepts and principles that are unique to a single field of study, general systems theory aims to generate concepts and principles that are generally applicable. The functionalist viewpoint served as the system theory's first inspiration. August Comte and Emile Dukheim, two of the founding fathers, are its primary sources. The theory focused on the assumption that society has its

different components which must perform its functions towards the functioning of the whole system (Joe, 2008).

Traditionally, analysis of transportation has been carried out by examining the different modes or factors affecting these modes separately. Furthermore, there is a tendency by researchers and practitioners to look for one transport mode, when in the actual fact they should be analyzing multiple modes. Akin to the systems theory where everything affects everything else, transport is no longer viewed in their isolationist context but within the broader framework of constraints and opportunities afforded by the 21st century information technolog. The essence of using a systems approach is to consider not only underlying transport factors or elements, but also the role of different agencies and actors in the overall transport system. Transport comprises of the way, terminal, the carrying unit and motive power which Ogundele (2015) called essential of transport. However, a fifth element was added by Oladoja (1991) which he called Operators. Somuyiwa (2015) further extended the list of the elements as follows; Networks, Termini, Interchange points, Motive power/Mobile facilities, Operators, Management and control, and Supportive services. Developing a worthy transport system in Lagos, requires a systems approach – understanding the system as a whole and the interaction between its elements, and identifying where there is potential for intervention.

Empirical Review

Research and publications on inland water transport in Nigeria includes the pioneering works of Professor R.K. Udo in the 1970s. Udo (1970) noted that water is one of the natural resources which Nigeria has in abundance and that the country has the opportunity to service most landlocked countries in West Africa such as Burkina Faso, Chad, Mali and Niger. Ilojie (1984) also observed that Nigeria is richly endowed with surface water resources and that over 8000 kilometers of the inland waterways are navigable. Other researchers such as Douglas (2001) and Adejare (2011) have written on various aspects of inland waterways in Nigeria such as the origin, advantages, neglect, management, problems and potentials of inland water transportation. For instance, Badejo (2011), and Eboli (2011) established that the Niger River, after which the country is the named, and the Benue, its largest tributary, are the main rivers whose channels provide the longest waterways into the hinterland of the country. Both rivers rise outside the country but meet at Lokoja confluence and later enter the Gulf of Guinea through a large network of creeks and distributaries which form the Niger Delta. They also noted that rapids and falls are common along many Nigerian rivers and that these are partly responsible for the fact that navigation is not possible along certain parts of these rivers.

Amaechi, Ogbemudia, and Okoduwa (2024) employ geographic information systems (GIS) and remote sensing techniques to analyse land use and land cover (LULC) changes in Lagos State from 2002 to 2022 and to project LULC changes for the year 2050. ENVI 5.3 was utilised for supervised classification via the maximum likelihood technique, categorising Lagos State into six distinct classes: built-up areas, bare land, wetlands, forest, grassland, and water bodies. Subsequently, the IDRISI-TerrSet so4ware CA-Markov model was employed to predict land use patterns for the year 2050. The classification accuracies for 2002 and 2022 were 89.87% and 87.50%, respectively, with kappa coefficients of 0.86 and 0.83, which are considered acceptable. From 2002 to 2022, the built-up area increased by 26.6 km², bare land decreased by 110 km², wetland area decreased by 96 km², forest area decreased by 449 km², grassland area increased by 11 km², and water bodies decreased by 133 km². The projects for the year 2050 indicate that from 2022 to 2050, built-up land will increase by 664 km², bare land will increase by 0.7 km², wetlands will decrease by 1.5 km², forests will decrease by 7.6 km², grasslands will increase by 7 km², and water bodies will decrease by 3 km².

In another study, Adams (2004) discovered that the capacity of Nigerian navigable waterways has increased to about 10,000 kilometers plus an extensive coastline of about 852 kilometers. Based on this, he noted that the country has a huge potential to move goods and passengers from the coast to the hinterland by water. Also, Obed (2013) regretted that the immense opportunities which the Nigerian inland waterways provide for business is yet to be tapped by potential investors. He established that despite her huge potentials, inland water transport is yet to become an alternative means of transportation to road and air such that passengers and cargo can sustainably and efficiently by moved to their destination through water. Similarly, Ojile (2006) lamented that inland water transport is yet to receive the attention it deserves from the federal government particularly in the twin areas of funding and infrastructural development. He outlined the physical impediments to improved performance in the sector to include non-channelization and dredging of navigable rivers, inadequate construction and rehabilitation

of river ports, limited water transportation infrastructures (comfortable boats, jetties and buoys) and safety and security concern along the navigable waterways, (Ibrahim & Dauda, 2024).

Given the State's critical infrastructure planning limitations, Ogundari (2020) examines the project planning specifications for an off-grid water desalination critical infrastructure project in Metropolitan Lagos, Nigeria. Technological, financial, and socioeconomic data for the water desalination project were obtained, and the Technology Foresight Analysis (TFA) methodology was used for analysis. The results determined that a 100 million litres a day (MLD) water desalination plant design requires an initial investment of N 70.82 billion. The estimated levelized cost of desalinated water was N 0.89 per Litre. With an assumed retail price of N 1.00 per Litre of water, annual revenue and profits were estimated at N 24.13 and 3.638 billion, respectively. Profitability indices showed Net Present Values of N 16.15 billion, a break-even time of 1 year, a payback period of 13 to 20 years, and a Return on Investment of 122.8% over the 25-year life span of the project. Socioeconomic benefits were determined to be a regular supply of desalinated water provided at a quarter of the extant price charged by water vendors supplying the area and having a daily cost savings of N 100.56 – 201.12 million (N 36.72 – 73.42 billion annually). The study concluded that an off-grid water desalination infrastructure project for the area would be technically feasible, economically viable, and socioeconomically worthwhile. It is recommended that it be deployed as an adequate and appropriate strategic municipal water supply alternative for Metropolitan Lagos, Nigeria. Adeoti, & Vigneswaran (2023). Using the PRISMA method, this systematic literature review synthesised findings from 15 studies to elucidate the key factors contributing to water infrastructure failure in Nigeria and propose evidence-based sustainable solutions. The study identified technical, financial, environmental, social, political, and institutional factors as predominant challenges in achieving water infrastructure sustainability. The researcher proposes a comprehensive ‘Sustainability Framework for Water Infrastructure’ in response to these challenges. This framework is designed to guide every stage of water infrastructure development, starting from pre-construction with an emphasis on inclusive project planning, followed by the construction phase, where suitable techniques are utilised, and extending to the post-construction stage, focusing on efficient monitoring and management mechanisms.

Interview report

The intricate tapestry of water transportation in Lagos State is woven with threads of both necessity and frustration, as revealed by the candid accounts of users, operators, and officials. The waterways offer a paradoxical experience for the everyday user, a blend of time-saving efficiency and persistent anxiety. In a city notorious for its debilitating traffic congestion, water transport often presents itself as a swift escape, a means to bypass the gridlock that consumes hours of daily life. This time-saving aspect, particularly during peak hours, is undeniably advantageous. It allows commuters to reach their destinations with the expediency that road travel cannot match. However, this advantage is consistently overshadowed by a pervasive sense of unease. Safety concerns loom large, with users frequently witnessing overcrowded vessels, a lack of readily available or properly maintained life jackets, and a general disregard for established safety protocols. The spectre of accidents, often fuelled by news reports and personal observations, casts a shadow over every journey. Furthermore, the reliability of water transport is a constant source of frustration. Delays are commonplace, schedules are rarely adhered to, and cancellations due to weather or mechanical issues are frequent. This unreliability disrupts daily routines, diminishes productivity, and erodes trust in the system. Adding to the users' woes is the dilapidated state of the infrastructure. Jetties and terminals, often neglected and poorly maintained, lack basic amenities such as proper waiting areas, sanitation facilities, and adequate lighting. This creates an uncomfortable and often unsafe environment, further exacerbating the negative experiences associated with water transport. In essence, the user experience is one of grudging acceptance, a compromise between avoiding traffic and the constant anxiety arising from safety and reliability concerns.

From the perspective of operators, both public and private, the provision of water transport services is a demanding and often precarious undertaking. The business is fraught with operational challenges, beginning with the unpredictable nature of the environment. Sudden weather shifts, heavy rainfall, strong winds, and rough seas characterise Lagos's coastal climate. These conditions disrupt schedules and pose significant safety risks, requiring operators to adapt and make difficult decisions constantly. Fluctuating fuel costs add another layer of complexity, impacting profitability and making it challenging to maintain stable fares. Maintaining vessels, particularly older ones, is a constant and costly endeavour. Spare parts are often expensive and difficult to source,

and the harsh saltwater environment accelerates wear and tear. Furthermore, the regulatory landscape is often perceived as cumbersome and opaque. Operators frequently cite unclear guidelines, bureaucratic processes, and inconsistent enforcement as obstacles to efficient operations. The need to navigate a complex web of permits and licenses adds to the administrative burden, diverting time and resources from core operational activities.

Government officials overseeing the development and regulation of the water transport sector present a more nuanced perspective. They acknowledge the significant challenges facing the sector but also highlight the progress that has been made and the ongoing efforts to improve services. They recognize the urgent need to address safety concerns, improve reliability, and modernize infrastructure. However, they also emphasize the constraints imposed by limited resources, bureaucratic hurdles, and the sheer scale of the task. They point to implementing new regulations, acquiring patrol boats, and developing infrastructure projects as evidence of their commitment to improving the sector. They also highlight the importance of public-private partnerships in leveraging private-sector investment and expertise. However, they acknowledge that there is still a long way to go to achieve their sustainable, efficient, and integrated water transport system goals. They are committed to continued improvement, emphasizing the need for a holistic approach that addresses infrastructure, safety, reliability, and regulatory issues. They also stress the importance of public engagement and stakeholder collaboration in shaping the future of water transport in Lagos. In essence, the officials' perspective is measured optimism tempered by a realistic assessment of the challenges ahead. They are committed to driving positive change but also recognize the need for patience, persistence, and collaboration to achieve their long-term vision.

Developing a sustainable and efficient water transportation system in Lagos State is encumbered by a complex web of interconnected challenges articulated by users, operators, and officials. These challenges, ranging from financial constraints to environmental concerns, impede the realisation of a robust and reliable waterway network that can alleviate the state's transportation woes. Foremost among these challenges is the critical issue of funding. The sheer scale of investment required to modernise the water transport infrastructure and acquire a fleet of contemporary, safe, and efficient boats is substantial. The construction and rehabilitation of jetties and terminals, the procurement of new vessels, and the implementation of advanced technologies for navigation and communication necessitate significant capital outlays. The current funding mechanisms, often reliant on limited public resources, are inadequate to meet these demands. The lack of consistent and substantial financial support hampers the ability to implement long-term development plans and hinders the adoption of innovative solutions. This financial constraint is a foundational obstacle, directly impacting the ability to address other critical challenges.

The dilapidated state of infrastructure further exacerbates the challenges facing water transport development. Many jetties and terminals are in disrepair, lacking basic amenities such as proper waiting areas, sanitation facilities, and adequate lighting. This not only diminishes the passenger experience but also poses safety risks. The lack of standardised designs and maintenance protocols contributes to the deterioration of these facilities. The need for substantial investment in infrastructure rehabilitation and modernisation is evident, but the financial constraints previously mentioned impede progress in this area. The reliability and scheduling of water transport services are also significant concerns. Frequent delays and cancellations, often attributable to weather conditions or mechanical issues, disrupt daily commutes and diminish the appeal of water transport as a viable alternative to road travel. The lack of real-time information systems and effective communication channels exacerbates these issues, leaving passengers uninformed and frustrated. The need for improved scheduling, better communication, and more resilient operational practices is crucial for enhancing the reliability of water transport.

Another critical challenge is the seamless integration of water transport with other modes of transportation. The lack of well-coordinated connections between jetties and bus terminals or rail stations inconveniences passengers, discouraging them from using water transport for their daily commutes. The absence of integrated ticketing systems and real-time information platforms hinders the seamless transition between modes. The development of multimodal transport hubs and the implementation of integrated planning strategies are essential for enhancing the connectivity and efficiency of the overall transportation network. Environmental concerns also pose a significant challenge to the sustainable development of water transport. Dredging activities, while necessary for maintaining navigable waterways, can have adverse impacts on aquatic ecosystems. Pollution from vessel emissions and waste disposal further exacerbates environmental degradation. The need for environmentally responsible practices, including adopting cleaner fuels and waste management systems, is

crucial for mitigating the environmental footprint of water transport. Finally, security concerns deter potential passengers from using water transport, particularly at night. Reports of theft and criminal activity on the waterways create a sense of unease and undermine public confidence in water transport safety. Enhanced security measures, including increased patrols and surveillance, are essential for ensuring the safety of passengers and crew.

CONCLUSION

Despite the important advantages of water transportation, its choice as a mode of commuting within the metropolis has not been well appreciated. This was significantly linked to the poor perception of safety by the passengers. It is therefore necessary now, more than ever, for the government and water transport operators to improve on its services, particularly in the area of safety, by making sure that proper safety measures are adequately adhered to. Part of these measures may include one, not allowing boats to exceed its carrying capacity, constant maintenance and servicing of boats. Subsequently, quality of service should be improved to make the water transportation more attractive to commuters. Furthermore, water transport operators must make their services safer by providing adequate and efficient safety measures in their various boats/ferries and jetties. This study suggests that the Lagos State government should make efforts to put in place adequate and efficient safety measures and other necessary actions to revive the water transportation in Lagos in order to reduce pressure on road transport and help to reduce the incessant traffic congestion on Lagos roads.

RECOMMENDATION

Based on the conclusions highlighted above, the following recommendations are therefore put forward:

1. Boosting safety standards by enforcing more stringent guidelines and frequent inspections of ferries and their operators to make sure that safety procedures are followed and upkeep is performed on time.
2. Investing in safety infrastructure by updating terminals and jetties with emergency exits, fire extinguishers, and life jackets, among other essential life-saving supplies.
3. Public awareness campaigns: Run efforts to inform the public about IWT safety precautions, promoting responsible operating and passenger Behaviour.
4. Controlling and subsidizing fares: Puting in place a just and open system of pricing that guarantees affordability for people of all income levels, possibly with special discounts for particular groups.
5. Modernized infrastructure: Add contemporary facilities to terminals and jetties, such as waiting areas, restrooms, and features that make them accessible to those with impairments.
6. Using technological solutions to increase productivity and enhance user experience, such as e-ticketing platforms, scheduling apps, and real-time tracking systems.
7. Train and empower personnel: Provide adequate training for ferry operators, staff, and safety personnel to ensure professionalism, competence, and efficient service delivery.
8. Public awareness campaigns: Launch comprehensive campaigns to educate the public about the benefits and advantages of IWT, highlighting its safety, efficiency, and environmental sustainability.

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