Impact of Waterfront Site and Service Schemes on Land Values in Victoria Island, Lagos, Nigeria

[1]Oba, Peter T. S. and [2]Awolaja, Kunle G.

[1]Department of Estate Management & Valuation, Ken Saro Wiwa Polytechnic, Bori, Nigeria | Email: petertomonidie@yahoo.com | Phone: 08037084112
[2]Lagos State Valuation Office, LASG Secretariat, Alausa, Ikeja, NIGERIA | Email: kunlaj2002@yahoo.com | Phone: 08023069102

Abstract: This research investigates the impact of Waterfront regeneration activities on Land Values in foreshore Waterfront schemes in Victoria Island, Lagos, Nigeria. This initiative was taken by the Lagos State Government to follow global best practices of embarking on urban regeneration in order to ensure sustainable development of the Waterfront of Lagos State. This research therefore intends to critically assess the impact of the Waterfront regeneration activities in Ozumba Mbadiwe Foreshore on Land Values in Victoria Island, Lagos. In attaining the aim and objectives of the study, questionnaires were administered to 28 Estate Surveyors and Valuers, 20 selected land owners/tenants/occupiers on allocated government lands and 10 Staff of Ministry of Waterfront Infrastructure/policy makers in the study area. A hypothesis was formulated and analyzed using simple and multiple regressions. Findings indicate that the factors that has affected the rate of physical development and land values in the study area between 2003 and 2012 and concluded that since the P-value in the ANOVA table is less than 0.05, there is a statistically significant relationship between regeneration activities and land values (Market Value and Average supply) at the 95.0% confidence level while the null hypothesis is that there is no significant relationship between the Land Value and Waterfront regeneration activities in the study area within the period 2003 – 2012. The paper recommended that appropriate measures for policy formulation and implementation with respect to sustainable Waterfront Site and Service Scheme management be taken by government.

Key words: Waterfront, Regeneration, Site and Services Schemes, Land Values

1. Introduction

The rapid urbanization and globalization has made cities become the engines of· population and economic growth. The resultant effect of this, has contributed in making

natural resources in and around the cities to be exposed to externalities of urban development processes (Dizgaorlu et al (2012). Urban renewal or regeneration emerged as one of the effective means of combating the challenges of urban decay, infrastructure and housing shortage as well as for reviving declining social and economic status of urban areas across the globe. In the developing countries, where physical deterioration, infrastructure, obsolescence, poor housing conditions and disaster vulnerability pose serious threats to public health and sustainable urban development (United Nations Population Fund, 2007). Urban regeneration projects can help to reduce vulnerabilities in Cities through rehabilitation, recycling and renewal of existing built-up areas. Besides, urban regeneration can help to achieve compact cities by concentrating new developments within cities in both cases (Couch and Dennemann, 2000). Roberts (2000) defined urban regeneration as a comprehensive and integrated vision and action which leads to the resolution of urban problems and which seeks to bring about a lasting improvement in the economic, physical, social and environmental condition of an area that has been subject to change. Couch (1990) and Zielenback (2000) state that the primary aim of urban regeneration is to upgrade a whole neighbourhood through improving blighted areas, ameliorating traffic situation and providing open space and. better urban infrastructure. Moreover, Andersen (2003) added that urban regeneration benefits economic and social development through job creation.

Therefore, waterfront regeneration has become an urban panacea, a cure-all for ailing cities in search of new self-images or ways of dealing with issues of competition for capital development or tourist dollars. The opening up of the waterfront became an international phenomenon of urban development most especially the reclamation of waterfront which has spread out elsewhere, but the theory of waterfront regeneration still far behind the practice (Marshall, 2006).

Waterfront regeneration activity took its root from urban regeneration activity worldwide. The Baltimore USA Waterfront regeneration activity was the earliest known case, other coastal and cities with Waterfront have taken the bold step of regeneration based on sustainability as highlighted in the literature that were reviewed.

The Lagos State Government in Nigeria, with the State being a coastal State and are not willing to be left out on decision to regenerate the Waterfront. This paper seeks to appraise the impact of Waterfront Site and Service Schemes on physical development and land values in Victoria Island.

2.   Statement of Research Problem

The Logical approach to examine the development of waterfront site and service scheme in Victoria Island, Lagos and its impact is crucial to land value. The study will assess how urban regeneration activities could enhance or otherwise the value placed on coastal land. Various theories and papers have been presented toward making the waterfront a viable place of living. However, there are always problems that arise when the waterfront is being regenerated especially in an urban setting as in the case study. This research would therefore appraise the process involved in the developments/redevelopment of the Victoria Island waterfront with the intendment of analyzing its effects on land values putting into consideration the value drivers that comes along with it.

3.   Aim and Objectives of the study

The aim of this paper is to appraise the impact of Waterfront Site and Service schemes on

physical development and land values in Victoria Island. In order to attain the stated aim, the following objectives are set to:

(i)   Identify the key elements of waterfront regeneration policy and practice in Victoria Island, Lagos, Nigeria.

(ii)   Examine the rate of physical developments in the Waterfront Site and Service Scheme over a ten-year study period (2003 - 2012).

(iii)   Identify the factors that have affected the rate of physical development and land values in the study area between 2003 and 2012.

(iv)   Identify the challenges (if any) associated with physical development in the study area.

4.   Research Hypothesis

The hypotheses for this research are as follows:

H_1:   There is statistically significant relationship between waterfront regeneration activity and land values in the study area over a 10 year period (2003 - 2012).

H_0:   There is no statistically significant relationship between waterfront regeneration activity and land values in the study area over a 10 year period (2003 - 2012).

5.   Study Area

Lagos is a coastal State the smallest in Nigeria, West Africa. In area context it covers approximately 3.577sqkm which represent 0.4% of Nigeria total Land area. It is however the heaviest populated State in the country despite its small size as shown in figure 1.2. This is also shown in the location map of the study area. Victoria Island covers an area of about 8 square kilometers. The settlement is bounded on the North and West by the five cowries Greek, on the east by Lekki Peninsular and on the South by the Atlantic Ocean. Victoria Island as part of the former Federal Capital of Nigeria until the seat of government was relocated to Abuja. The area is located within Eti-Osa Local Government Area; and was initial designed as a low density high class residential area with few institutions and recreational uses. However, in recent times commercial uses have been on the increase, with rampant change of use from residential to commercial and mixed uses; and in some instances, increased intensity of existing residential uses through redevelopment.

However for the purpose of this study, the Ozumba Mbadiwe Foreshore Waterfront Scheme which is situated in Victoria Island, Lagos has been selected as the study area. In the study area, a total of 23 numbers of plots are available in Ozumba Mbadiwe Scheme with the entire landholding and plot allocations as shown in Table 1

Table 1: Plot Allocations at Ozumba Mbadiwe Waterfront Scheme, Victoria Island.

S/N	Allottees	Plots
1	Spectrum Leed Limited	270
2	Glorystone Company Ltd	Ozumba 1
3	Lagos State Development & Property	2

	Corporation	
4	Eldon Place Limited (Raddison Blue Hotel)	Ozumba2
5	Zenon Petroleum & Gas Ltd	3
6	Lagos State Waterfront & Tourism Devt. Co.	B, BA, C, CA, F & FA
7	Blue Streak Global Services Ltd	Ozumba3
8	Royal Platinium International	D&DA
9	Jovis Nig Ltd (Civic Center)	JA&J
10	Paradise Holidays Nig Ltd	8,9& 10
11	Okunde Estate Development Company Ltd	K
12	Baloy Enterprises Nig Ltd	H
13	Masyra International/Sporting Rocky Ltd	Lc
14	Fikibal International Nig Ltd	244

Source: Researcher's Field Survey, 2019.

6.   Review of Related Literature

Urban regeneration is driven by economic transition, concerns of social and community environment, physical obsolescence new land and property requirements; in addition to environmental quality and sustainable development. In terms of waterfront regeneration efforts, however, it is forced by port closure, de-industrialization, land abandonment and desire for open space (Hoyle et al, 1988; Bruttomesso, 1991; Breen and Rigby, 1996; Roberts, 2000). Trueman et al (2013) investigated the well-being of the built environment in terms of the economics of regeneration, participation, sustainability, social enterprise, migration, partnership, management, and the importance of place and space. The study focused on sustainable and intangible aspects of individual and community well-being and investigated how policies, programmes and projects increase well-being in the built environment, and what this means for those involved, and recommended pragmatic and workable solutions based on sound theory and practice.

In evaluating the different schemes of urban regeneration project for urban decay in Hong Kong, Yau and Chan (2008) developed a multi-criteria decision-making framework. The study identified two different approaches, namely, to build rehabilitation and redevelopment. It identified that urban regeneration was dominated by complete redevelopment in the past but there has been a paradigm shift with the rise of the concept of sustainability that led to the choice of building rehabilitation becoming increasingly popular. However, it was discovered that difficulties were often encountered in balancing diverse interests of the stakeholders who have varied aims and ambitions for the achievements of a project. In attaining the aim of the study, a framework was developed, which contains the factors that were considered when planning an urban renewal project. The study measured the relative importance of these factors from the building-related professionals by employing the Non-structural Fuzzy Decision Support System and interviewing total of 34 building surveyors and 31 town planners using structured questionnaires.

Carbonaro and D' Arcy (1993) identified the Issues resulting from active involvement in urban restructuring strategies by a property developer or investor and illustrated these with recent European examples of property-focused regeneration strategies. It was argued that the developer's decision on whether and under what form to

participate in such ventures should include analysis of the effect of programme implementation and the integration of the property development component into the 'implementation structure'. In similar study, Berry et al (1991) on public and private sector.

Partnerships in Ireland's waterfront regeneration, two approaches to waterfront regeneration, namely, the Custom House Docks Scheme in Dublin and the Lagan side Scheme in Belfast were compared. It concluded that Custom House Docks was able to institute development at a reasonable pace whilst Lagan side may require the status of Enterprise Zone designation.

According to Ijasan and Ahmed (2013), the endless and recurrent nature of community regeneration is of massive concern to any government due to the financial and human resources. The study adopted the triangulation method of research where interviews, literature review and questionnaires sources of data were all used. It found that the Local Councils and other regeneration service providers better channeled more resources at the use of community representatives in areas where there is dominance of ethnic minority groups. This paper explored community regeneration and identifies the need for partnerships in the process of the delivery of regeneration to a community. It investigates the various levels of community engagement and participation, the cultural diversity of England and discusses the social exclusion situation of Black and Minority Ethnic (BME) Groups. The paper also discussed the results of a descriptive quantitative analysis of a questionnaire survey which studied BMEs and their experience of community regeneration, both in terms of their housing needs and also the challenges preventing them from effective community engagement. Practical suggestions were made to assist policy and decision- makers in engaging members of the BME community more in regeneration.

Reinforcing the achievements of Jiwa *et al* (2009) in waterfront regeneration, Wang (2007) traced the historical relationship between the port and the city and concluded that the relationships were interwoven both physically and economically. He concluded that the symbiosis was broken in the 20th century with cities becoming more multi-functional and thus lessened their dependence on the ports. Structural economic changes weakened the traditional relationship between cities and ports (Knaap and Pinder, 1992). The paper opined that the movement of port activities and the evolution of maritime technology also deteriorated the city-port relationship.

Furthermore, Wang (2007) examined the lessons learnt from cities that have been regarded as models of waterfront regeneration. It regarded Baltimore, Boston and New York as the cradle of waterfront regeneration in North America. In UK, three major city ports, namely, London, Liverpool, and Bristol were identified as having achieved considerable transformation of abandoned docklands with other redevelopments taking place in a variety of cities, which include Cardiff, Dundee, Edinburgh, Glasgow, Hull, Manchester, Newcastle, Portsmouth, Southampton and Swansea; while in Continental Europe, cities like Barcelona, Amsterdam and Berlin were involved in this spread. From the literature, the authors aptly put into considerations the following key elements identified by US.EPA and NOAA-Coastal and Waterfront Smart Growth (2010), which are necessary to achieve success in regenerating the waterfront development framework master planning and implementation; delivery mechanism Public-private partnership timing and marketing the regeneration; outcome - economic and social balance.

Specifically, ten key elements that ensured the success of waterfront regenerated towns and cities in the United States were identified to include the following:

(i) Mixing land uses, including water-dependent uses - Portland, Maine- whereas compatible uses such as offices, shops are located above commercial fishing businesses. Rents from the upstairs tenants are used to subsidize the water based activities on the dock. (i. e. Mixed used zoning application).

(ii) Taking advantage of compact community design that enhances, preserves, and provides access to waterfront resources. For instance, in Cape-cod, Bemstable, Massachusetts - a public walkway was constructed to connect downtown Hyannis, Massachusetts with the waterfront.

(iii) Providing a range of housing opportunities and choices to meet the needs of both seasonal and permanent residents. Coastal location of Monterrey Bay, Santa Cruz, California - The Accessory Dwelling Unit (ADU) Development program in Santa Cruz, California allowed for the conversion of a garage into an apartment.

(iv) Creating walkable communities with physical and visual access to and along the waterfront for public use. As adopted in the case of Ogunquit, Maine in which a remnant of a pre-colonial coastal trail was turned into a public walkway along the Atlantic shore.

(v) Fostering distinctive, attractive communities with strong sense of place that capitalize on the waterfront heritage. This was attained in the case of Leland, Michigan - revitalization of the Fishtown downs helped Leland, capitalize on its heritage and history despite the decline of its traditional fisheries based economy.

(vi) Preserving open space, farmland, natural beauty, and the critical environmental areas that characterize and support coastal and waterfront communities. This was adopted in Brays Bayou, Houston, Texas - The National Oceanic and Atmospheric Administration's (NOAA), Coastal and Estuarine Land Conservation Program (CELCP) established in 2002, acquired and protects valuable coastal land along the Brays Bayou in order to help provide community open space, protect water quality, reduce potential for flood damage and enhance wildlife habitat.

(vii) Strengthening and direct development toward existing communities and encourage waterfront revitalization. Down city Providence and Water place Park both in Providence, Rhode Island in which revitalization of Down city including developing Water place park and River walk to provide pedestrian canoe and kayak access to the rebirth of downtown providence RI.

(viii) Providing variety of land- and water-based transportation options. As adopted in The Staten Island Ferry, New York by which The Staten Island Ferry provide a water based transportation option for 65, 000 passengers daily reducing associated pollution.

(ix) Making development decisions predictable, fair and cost effective through consistent policies and coordinated permitting processes. Bremerton, Washington- The town invested in a waterfront park and streamlined the development process along the shoreline of project sound to attract residential and commercial development.

(x)   Encouraging community and stakeholder collaboration in development decisions, ensuring that public interests in and rights of access to the waterfront and coastal waters are upheld. In the case of Vienna, Maryland which is a small town by the Nanticoke River, a tributary of the Chesapeake Bay an old town back to 1706. It uses community workshops, surveys and interviews to create a development plan that articulates the community's vision for both accommodating growth and preserving its rural characters in the future.

However, in this study, the key elements of waterfront regeneration identified in literature and found relevant to the study areas of Ozumba Mbadiwe Foreshore Waterfront Schemes in Victoria Island, Lagos, are classified into six, namely, political, economic, social, technological, legal, and environmental.

In assessing the factors affecting waterfront physical development, a study on the phenomena of city-branding and offered framework for the analysis and evaluation of city brands equity, firmly anchored on the inter-disciplinary characteristics of the city branding research domain was carried out by Lucarelli (2012). The study was based on database of 217 articles and evaluated city brands from different scholars' point; and characterized by both intangible and tangible factors. It further proffers an admixture of different methods and certain type of outcomes that impact directly on the socio-political and economical aspects of the image and identity of the city. Mabogaje (2010), in a study on land reclamation for waterfront development, using Maroko Foreshore waterfront scheme as a case study averred that accessibility both in terms of possessing physical and financial access are factors that affect not land value but physical development of the waterfront. The study identified the funding bodies responsible for land reclamation concept, and from a survey conducted using both postal and face to face interviews, found out that construction and property professionals gave a positive view of the land reclamation exercise. In the study area the factors considered that have effects on physical development on the waterfront having reviewed the literature are those of demand, supply, price, physical development and location. Prayag (2010), in a study aimed at understanding the relationship between three components of brand knowledge in an African city brand namely, image, differentiating attributes and choice factors assessed the brand image of Cape Town, South Africa as a tourist destination. The author methodology includes using a progressive method of unstructured and structured techniques such as word association and free association, and mixed method incorporating in-depth interviews with a convenience sample of 85 international visitors to Cape Town and a survey, involving 585 useable questionnaires incorporating both open and closed-ended questions. The study analysed the strengths and weaknesses of each technique used and realised that word association is effective at eliciting positive images and holistic impressions but weak at identifying affective images. The free-choice technique was found to be ideal as it offers a more balanced perception of positive, negative, cognitive and affective images of a brand.

In an attempt to examine the challenges of creativity in cities and how they stimulate urban innovation and local development, Sepe and Di Trapani (2010) again suggested steps to take in order to mitigate identified challenges. These steps include involvement and integration of the local community at all levels, the application of economic, social and environmental sustainability and the enhancement of place identity as necessity for the achievement of long-term success of urban and cultural regeneration.

Kosmala and Sebastyanski (2013) also in their study on the roles of artists' collective in the Gdansk Shipyard's heritage protection supported the view enunciated by Sepes. Sepe and Di Trapani (2010) emphasized the need to enhance and consolidate place identity, all in respect of economic, social and environmental sustainability, as critical factors necessary to ensure the long-term successful achievement of urban and cultural regeneration.

However, in a paper on promoting sustainable (tourism) festival events using as a case study an annual festival held in Lamu Old Town (a world heritage site), Kenya, Okech (2011), agreed that although festivals have the potentials of providing opportunities for sustainable local economic development, these opportunities are unexploited. In view of this, the author suggested that, festivals' engagement with tourism forces be carefully managed, both in the interests of sustaining the festivals and promoting sustainable approaches to tourism development. Deng and Poon (2012) harp on the need for sustainability in a paper on Expo 2010 Shanghai China: a signature chapter of the Huangpu Riverfronts Trilogy enjoined that in order to prevent post event failure there is the need long range planning for mega events. The study is in agreement with the fact that though mega-events have not only enjoyed increasing global popularity, it has acted as catalysts for significant urban regeneration both on and beyond the event grounds. The multiple-case study approach, whereby two methodological steps are taken to seek a greater understanding of the issue at global and local scales was the methodology used in the study. Firstly, the review of eight mega-events in the West in order to identify post-event sustainability challenges and secondly to evaluate these challenges through an examination of the Expo 2010 development as a chapter of the Huangpu Riverfronts Renewal in Shanghai. The study concluded that the eight mega events (samples) and Expo 2010 unanimously challenge the dichotomy between event staging and post-event sustainability and thus the need for future client organizations to rethink how to find a convergence. In the study area the identified challenges which has taken into consideration the reviewed literature includes cost, legislations, re-planning/redesigning, physical development and human capacity.

7. Research methodology

Data for the study were obtained from questionnaires administered on target population of 28 estate surveyors and valuers, 20 selected government land allocated owners/tenants/occupiers and 10 workers of ministry of waterfront infrastructure/policy makers in the study area. Out of the distributed questionnaire 20 estate surveyors and valuers, 8 selected government land allocated owners/tenants/occupiers and 8 workers of ministry of waterfront infrastructure (policy makers) respondents returned their questionnaires representing 62.07%. This level of response is still considered reasonable for validity of the research survey. Questions were designed to probe the details of the research objectives.

Data collected for the research were represented and displayed as tables, to be able to explain findings. Some sets of data were collected on Land values, demand for plots and the corresponding supply of plots within the scheme, also the actual physical development from 2003 – 2012.   A number   of techniques were arrived at by use of Start-graph software, simple and multiple regression analysis, analysis of variance (ANOV A) and the Relative Importance   Index (RII). The evaluation of relationship between dependent and independent variables was carried out using the simple regression models. The first step

consisted of defining the Land values in the past ten years, the demand for plots and the corresponding supply of plots within the two waterfront schemes. This was to determine the relationship between the combined explanatory variables and the actual physical development in the study area. In the case of waterfronts   schemes, yield was regressed and correlation   on the set of explanatory variable. The coefficients of the variables measure directly or indirectly the marginal effects of the independent variables in addition to supply of land in the study area.

The Rll is been derived by summing up all respondents ranking of each element. The number of respondent that ranks each element is indicated under each score from 1- 5 with 5 being the highest and 1 being the least.

8.   Results and Discussion
8.1   Respondents' Bio Data
The respondents' age, status, and work experience have been considered in this section.

Respondents' Age Brackets
The respondents' age brackets were classified into four as shown in Table1below:

Table 1: Age Distribution of the Respondents

S/N	Age Bracket	Respondents	(%) Percentage
1	21- 40 Years	16	44
2	41- 60 Years	20	56
3	61-70 Years	0	0
4	71 and above	0	0
Total		**36**	**100**

Source: Researcher's Field Survey, 2019.

From the 36 respondents sampled as shown in Table 1, 16 (44%) were within the 21 - 40 year bracket While 20(56%) aged between 41 and 60 years; while none of them aged older than sixty years. This implies that majority of the respondents were matured and within active years in their chosen career.

To further probe the status of the respondents, Five major areas were identified to guide the respondents' decision on the roles they play in waterfront regeneration process as shown in Table 2

Table 2: Respondents' Roles in Waterfront Regeneration Process

S/N	Responsibility	Respondents	Percentage
1	Work in the Ministry of Waterfront/Infrastructure	5	14
2	Government Policy Maker	5	14
3	Leaseholder of Government Allocated Land	6	17
4	Estate Surveyors & Valuers	20	56
5	Tenant/Occupier	0	0

Source: Researcher's Field Survey, 2019.

From Table 2, 20 (56%) of the respondent were Estate Surveyors and Valuers; 6 (17%) were leaseholders; and equal number of 5 (14%) were either policy- makers or civil servants working in the Ministry of Waterfront Infrastructure. This implies that at least 28% of the respondents have required inner workings of government policies regarding the research area and in addition to 55% of real estate practitioners; the opinions expressed are reliable and make the research findings equally reliable. Further analysis of the respondents indicates that 5(14%) are policy-makers s shown from the actual composition in Table 2 above.

The respondents' experience at work was considered and analysed according to five categories of number of years spent as shown in Table 3 below:

Table 3: Respondents' Experience at Work

S/N	Options	Respondents	(%) Percentage
1	Less than 5 years	NIL	NIL
2	5 - 10 Years	4	11
3	11-15 Years	12	33
4	16-20 Years	4	11
5	Above 20 Years	16	45
Total		**36**	**100**

Source: Researcher's Field Survey, 2019.

From Table 3 16 (45%)of the respondents, had worked for more than 20 years; 12 (33%) had worked for between 11 and 15 years; while 4 (11 %) had either worked for 5 to 10 years or 16 to 20 years. This implies that at least 32 out of the 36 respondents (89%) have worked for at least 11 years; indicating that they possessed reliable information based on long service years, thereby making their opinions to be reliable.

4.4   Key Elements of Waterfront Regeneration Policy and Practice in the Study Area

Attempt in this section is to attain the first objective which is to identify the key elements applicable to waterfront regeneration policies and practice in the Ozumba Mbadiwe Schemes. In this case, the respondents were provided with the options that were identified in literature and shown in Table 4 for Ozumba Mbadiwe Scheme.

Table 4: Key Elements Identified for Ozumba Mbadiwe Foreshore

S/N	Elements	No		Yes		Total	
		Response	**%**	**Responses**	**%**	**Response**	**%**
1	Political	5	14	31	86	36	100
2	Economic	7	19	29	81	36	100
3	Social	6	17	30	83	36	100
4	Technology	5	14	31	86	36	100
5	Legal	5	14	31	86	36	100
6	Environmental	8	22	28	78	36	100

Source: Researcher's Field Survey, 2019.

From Table 4, majority of the36 respondents agreed that the listed items are key elements of waterfront regeneration. These are political element 31(86%), economic element 29(81%), Social element 30(83%), technology 31(86%), legal 31(86) and environmental element 28(78%) as key element to development of Ozumba Mbadiwe Foreshore. This confirms that these elements affect waterfront regeneration. The result of this study seem to upheld views by Sepe and Di Trapani (2010) that emphasized the need to enhance and consolidate place identity, all in respect of economic, social and environmental sustainability, as critical factors necessary to ensure the long-term successful achievement of urban and cultural regeneration.

This was emphasized by Wang (2007) when he traced the historical relationship between the port and the city and concluded that the relationships were interwoven both physically and economically.

Furthermore, the respondents' opinions were solicited to determine the order of importance of the different elements as shown in Table 5.

Table 5: Relative Importance Analysis of the Key Elements

S/N	Element	Score for Ranking					TOTAL	TWV	R.I.L	Rank
		5	4	3	2	1				
1	Political	15	3	6	8	4	36	125	0.694	5th
2	Economic	12	16	12	4	2	36	170	0.944	1st
3	Social	10	15	6	4	1	36	137	0.761	3rd
4	Technology	5	5	12	4	10	36	95	0.528	6th
5	Legal	15	0	18	2	1	36	135	0.75	4th
6	Environment	24	12	0	0	0	36	168	0.933	2nd

Source: Researcher's Field Survey, 2019.

From Table 4.7, the figures indicated in the Tables represent the number of respondents that ranked each element under each score. As shown in table 5 above, Economic with RII of 0.944 was ranked first, Environmental element with RII of 0.933 was ranked second, while Social element with RII of 0.761 ranked third ,followed by, Legal(RII= 0.750) ranked fourth, political (RII = 0.694) and Technology with RII of 0.528 ranked last.

Determination of Factors Affecting the Rate of Physical Development and Land Values in the Study Area

Attempt in this section is to attain the stated objective, which is to determine the factors affecting the rate of physical development and land values in the study area. In this respect, the respondents were asked to rate the factors that affect physical development. Furthermore, the respondents' opinion were solicited to determine the order of importance of the factors affecting rate of physical development and land values in the study area; details are as shown in Table 6

Table 6: Relative Importance Index Analysis of the Factors Affecting Physical Development and Land Values in the Study Area

S/N	Factors	Score for Ranking					TOTAL	TWV	R.I.I	Rank
		5	4	3	2	1				
1	Demand	14	8	2	6	4	36	124	0.689	4th
2	Supply	15	12	3	3	3	36	141	0.783	2nd
3	Price	6	15	6	6	3	36	123	0.683	5th
4	Physical Development	9	18	6	0	3	36	138	0.767	3rd
5	Location	21	6	3	6	0	36	150	0.833	1st

Source: Researcher's Field Survey, 2019.

From Table 4.9, the figures indicated in the Tables represent the number of respondents that ranked each factor under each score. The Relative Importance of the factors to physical development and land values are indicated as follows. From the survey, Location ranked first with RII of 0.833, followed by Supply ranked second with RII of 0,783, Physical Development third with RII of o.767, Demand fourth with RII of 0.689 and finally Price ranked with RII of0.683. This findings look similar to earlier findings by Mabogaje (2010), in a study on land reclamation for waterfront development, using Maroko Foreshore waterfront scheme as a case study that accessibility in terms of location both in terms of possessing physical and financial access are factors that affect not land value but physical development of the waterfront

Identification of the Challenges Associated with Physical Development in the Study Area.
Attempt in this section is to attain the objective, which is to identify the challenges associated with physical development in the study area. In this case, challenges identified in literature were listed to assist the respondents in their selection. The results of their responses are shown in Table 7 below.

Table 7: **Challenges Associated with Physical Development in Ozumba Mbadiwe**

Options	Yes		No		Total	
	Responses	%	Responses	%	Response	%
Cost	31	86	5	14	36	100
Legislation	25	69	11	31	36	100
Re-	31	86	5	14	36	100
Physical Development	25	69	11	31	36	100
Human Capacity	0	0	0	0	36	100
Others	0	0	0	0	36	100

Source: Researcher's Field Survey, 2019.

From the results in table 7 above, it is clear that out of the five listed items , the respondents agree that four of them are challenges associated with physical development

in Ozumba Mbadiwe. These includes: Cost, Legislation, Re-planning/Redesigning, and Physical Development.

4.5 Relationship between the Waterfront Site and Service Scheme and Land Values
To determine the relationship between the Waterfront Site and Service Scheme and Land Values in the Study Area, data on land values and physical developments over a ten-year study period (2003 to 2012) were obtained and analyzed.

Table 8:   Transaction-based Demand/supply for Plots / Physical Development in Ozumba Mbadiwe

YEAR	DEMAND	SUPPLY	Physical Developments	N/M²
2002	8	5	0	20,000
2003	7	3	2	35,000
2004	4	2	4	40,000
2005	3	3	2	60,000
2006	3	2	3	75,000
2007	2	4	3	100,000
2008	2	2	1	75,000
2009	2	2	2	65,000
2010	1	0	2	100,000
2011	0	0	0	150,000
2012	0	0	0	200,000

Source: Researcher's Field Survey, 2019.

From table 8, the transaction-based demands for plots of land in the study area between 2003-2012 indicate a total number of Thirty Two (32). While the transaction-based supply of plots of land within the Study Area between 2003-2012 shows that the total number of supply in Ozumba Mbadiwe is Twenty Three (23). On the number of physical developments in the Study Areas between 2003 – 2012, it shows that the Total number of Physical Development in Ozumba Mbadiwe is Nineteen (19) out of Twenty Three (23).

Relationship between Number of Physical Development, Demand and Supply, Land Values
In this sub-section, attempt is made to determine me relationship between number of physical developments, demand and supply for land, and land values, hi this case, the simple linear regression and multiple regression models were used. This resulted in Table 9.

Table 9: Coefficients

Parameter	Least Squares Estimate	Standard Error	T Statistic	P-Value
Intercept	**102519**	32931.0	3.11315	0.0144
Slope	**-6589.15**	14876.7	-0.442916	0.6696

Table 10: Analysis of Variance

Source	Sum of Squares	Df	Mean Square	F-Ratio	P-Value
Model	5.60078E8	1	5.60078E8	0.20	**0.6696**
Residual	2.28399E10	8	2.85499E9		
Total (Corr.)	2.34E10	9			

Correlation Coefficient =**-0.154709**
R-squared = 2.39349 percent
R-squared (adjusted for d.f.) = -9.80732 percent
Standard Error ofEst. =**534321**
Mean absolute error = **38527.1**
Durbin-Watson statistic = 0.503825 (P=**0.0010**)
Lag 1 residual autocorrelation =0.461074

Table 10 shows the results of fitting a linear model to describe me relationship between Market Value and Average physical development, which is:

Market Value = 102519 - 6589.15*Average physical development Since the P-value in Table 4.21 is greater or equal to 0.05, there is no statistically significant relationship between Market Value and average number of physical development in the study area with alpha level set at the 95.0% or higher confidence level. The R-Squared statistic indicates that the model as fitted explains 2.39349% of the variability in Market Value. The correlation coefficient equals -0.154709, indicating a relatively weak relationship between the variables. The standard error of the estimate shows the standard deviation of the residuals to be 53432.1, which may be used to construct prediction limits for new observations. Furthermore, the relationship between average demand for sites in the Waterfront Scheme was also determined as shown in Table

Table 11: Coefficients of Relationship between Average Demand and Land Value in Ozumba Mbadiwe Scheme

Parameter	Least Squares Estimate	Standard Error	T Statistic	P-Value
Intercept	**124844**	18981.2	6.57725	0.0002
Slope	**-9169.41**	3680.29	-2.49149	0.0374

Table 12: Analysis of Variance average demand and land value in Ozumba Mbadiwe Scheme

Source	Sum of Squares	Df	Mean Square	F-Ratio	P-Value
Model	1.02239E10	1	1.02239E10	6.21	0.0374
Residual	1.31761E10	8	1.64701E9		
Total (Corr.)	2.34E10	9			

Correlation Coefficient =**-0.660998**
R-squared = **43.6918**percent
R-squared (adjusted for d.f.) = 36.6533 percent
Standard Error ofEst. =**40583.4**
Mean absolute error =**29633.2**
Durbin-Watson statistic = 0.888797 (P=**0.0074**)
Lag 1 residual autocorrelation = 0.295229

Table 12 shows the results of fitting a linear model to describe the relationship between Market Value and Average demand. The equation of the fitted model is

Market Value = 124844 - 9169.41 *Average demand Since the P-value in Table 4.31 is less than 0.05, this implies that there is a statistically significant relationship between Market Value and Average demand at the 95.0% confidence level. The R-Squared statistic indicates that me model as fitted explains 43.6918% of the variability in Market Value. The correlation coefficient equals -0.660998, indicating a moderately strong relationship between me variables. The standard error of the estimate shows the standard deviation of the residuals to be 40583.4, the mean absolute error (MAE) of 29633.2 is the average value of the residuals.

In determining the relationship between market value of land and average supply in the Ozumba Mbadiwe Scheme, details in Tables13 and 14.

Table 13: Coefficients of the Relationship between Market Value of Land and Average Supply

Parameter	Least Squares Estimate	Standard Error	T Statistic	P-Value
Intercept	137651.	19143.3	7.19053	0.0001
Slope	**-22690.8**	7287.73	-3.11356	0.0144

Table 14: Analysis of Variance

Source	Sum of Squares	Df	Mean	F-Ratio	P-Value
Model	1.28203E10	1	1.28203E10	9.69	
Residual	1.05797E10	8	1.32246E9		
Total (Corr.)	2.34E10	9			

Correlation Coefficient =**-0.740186**
R-squared = **54.7875**percent
R-squared (adjusted for d.f.) = 49.136 percent
Standard Error of Est. =**36365.7**
Mean absolute error =**26891.6**
Durbin-Watson statistic = 1.64928 (P= **0.1804**)
Lag 1 residual autocorrelation = -0.013878

Table 14 shows the results of fitting a linear model to describe the relationship between Market Value and Average supply. The equation of the fitted model is Market Value = 137651 - 22690.8*Average supply Since the P-value in the ANOVA table is less than 0.05, there is a statistically significant relationship between Market Value and Average supply at the 95.0% confidence level. The R-Squared statistic indicates that me model as fitted explains 54.7875% of the variability in Market Value. The correlation coefficient equals -0.740186, indicating a moderately strong relationship between the variables. The standard error of the estimate shows the standard deviation of the residuals to be 36365.7. The mean absolute error (MAE) of 26891.6 is the average value of the residuals.

However, further analysis using the multiple regression model to determine the combined relationship between average supply of and average demand for land, and average physical development of the study period, as shown in Tables 15 and Tables 16

Table 15: Coefficient Relationship between Average Supply of and Average Demand for   Land, and Average Physical Development

Parameter	*Estimate*	*Standard Error*	*T Statistic*	*P-Value*
CONSTANT	122038.	22110.7	5.51942	0.0015
Average supply	-23175.0	10892.3	-2.12766	**0.0775**
Average demand	-4017.94	4496.26	-0.893619	0.4059
Average physical Development	16788.3	11727.3	1.43156	0.2022

Table 16: Analysis of Variance

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Model	1.61469E10	*3*	5.3823E9	4.45	**0.0570**
Residual	7.2531E9	*6*	1.20885E		
Total (Corr.)	2.34E10	*9*			

R-squared = **69.0039** percent
R-squared (adjusted for d.f.) = **53.5058**percent
Standard Error ofEst. =**34768.5**
Mean absolute error =**19449.7**
Durbin-Watson statistic = 1.40555 (P= **0.0846**)
Lag 1 residual autocorrelation = 0.0387923

The results of fitting a multiple linear regression model to describe the relationship between Market Value and 3 independent variables. The equation of the fitted model is: Market Value = 122038. -23175.0*Average supply - 4017.94*Average demand + 16788.3*Average physical development

Since the P-value in Table 4.27 is greater or equal to 0.05, there is not a statistically significant relationship between the variables at the 95.0% or higher confidence level.

The R-Squared statistic indicates that the model as fitted explains 69.0039% of the variability in Market Value. The adjusted R-squared statistic, which is more suitable for comparing models with different numbers of independent variables, is 53.5058%. The standard error of the estimate shows the standard deviation of the residuals to be 34768.5. This value can be used to construct prediction limits for new observations by selecting the Reports option from the text menu. The mean absolute error (MAE) of 19449.7 is the average value of the residuals. The Durbin-Watson (DW) statistic tests the residuals to determine if there is any significant correlation based on the order in which they occur in your data file.

9.   Conclusion

This paper has Examine the rate of physical developments in the Waterfront Site and Service Scheme over a ten-year period. The paper identified key elements of waterfront regeneration policy and practice as well as the factors that have affected the rate of physical development in Victoria Island, Lagos, Nigeria. The paper found out Economic with RII of 0.944 ranked first, Environmental element with RII of 0.933 ranked second, Social element with RII of 0.761 ranked third ,followed by, Legal(RII= 0.750) ranked fourth, political (RII = 0.694) and Technology with RII of 0.528 ranked fifth and last respectively were considered key elements of regeneration. It Identify the challenges associated with physical development in the study area to be The paper examine the rate of physical developments in the Waterfront Site and Service Scheme over a ten-year study period (2003 - 2012). It conclude that Since the P-value in Table 10 is greater or equal to 0.05, there is no statistically significant relationship between Market Value and average number of physical development in the study area with alpha level set at the 95.0% or higher confidence level. The R-Squared statistic indicates that the model as fitted explains 2.39349% of the variability in Market Value. The correlation coefficient equals -0.154709, indicating a relatively weak relationship between the variables. It also identify the factors that has affected the rate of physical development and land values in the study area between 2003 and 2012 and concluded that Since the P-value in the ANOVA table is less than 0.05, there is a statistically significant relationship between Market Value and Average supply at the 95.0% confidence level. The R-Squared statistic indicates that the model as fitted explains 54.7875% of the variability in Market Value. The correlation coefficient equals -0.740186, indicating a moderately strong relationship between the variables. The paper recommends that appropriate measures for policy formulation and implementation with respect to sustainable Waterfront Site and Service Scheme management be taken by government.
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