

Abandonment of Antediluvian Waterfronts Settlements and rehabilitation in Nigeria Borough

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Abstract: The incapacitation of government to regenerate urban waterfronts increases slums, squatters settlements and absence of facilities for the comfort, functional, aesthetics and working environment for the entire population. The article scanned the abandonment and inability to regenerate antediluvian waterfronts and expunge unhealthy environment in Port Harcourt borough Nigeria. The investigation considered both descriptive and inferential survey design and targeted the total population of 210 household's heads through questionnaire administration. The e-books, research work, conference/seminar papers, official records, reports and monographs formed the secondary sources of data generated. The analysis employed mean index value (MIV) and standardized coefficient (beta) regression statistics test of 0.05 significant points. The outcomes shown that poor aesthetics and facilities (2.9750), unrestricted population (2.8000), blighted and slum condition (27917) etc are rampant in un-redeveloped urban waterfront. However, the result further retained ($R^2 = 0.967$, significant at 0.01) clarifying 96.7% spatial deterioration of un-redeveloped antediluvian waterfronts settlements found in urban areas. The Adjusted recorded $R^2 = 0.973$, designates 97.3% confidence of panorama for urban waterfronts neglect, spatial disorder and slum condition of various land uses. In positions with the research findings, the work recommended that government should rehabilitate and provide adequate infrastructural facilities for abandoned urban waterfronts settlements to lessen the poor environmental quality that engulf the area and embolden real estate developers to participate in purchase and rehabilitation of various land uses to attract the occupancy or tenancy of households from different part of human settlement

Keywords: antediluvian, waterfronts, rehabilitation, borough and Settlement.

I. INTRODUCTION

In the past years, antediluvian urban waterfronts were accepted as one of the most important settlements habitable for necessary human civilization and good health all over the world. But the powerless effort by the government to rehabilitate antediluvian urban waterfront provoked urbanization and unregulated land use activities and general decline of the natural powers, functions and characteristics of anciently developed waterfronts that increases economic wellbeing, national development, environment aesthetics and comfort (Azlina, Yassin, Chris and John, 2010). The dreadful situation of anciently developed urban waterfronts originated when the urban politician directed for strengthen urban effectiveness to enhance the availability of movable employment, capable workers, and financial output in a universal economy, initial industrial and maritime-concerns without rehabilitation opportunities (Fatma, 2009) .

The absence of rehabilitation that trails urban water environment or settlement continues to be a multifaceted problem that interact and connect climate change, population growth, water scarcity, pollution and inhabitable atmosphere in totality. Such situation requires assimilated, harmonised, environmentally-oriented, and prudent methodology for consistent guard

and regeneration of waterfronts and associated panorama. The endowed area and diversity identifies the necessity to embrace all-encompassing age-related framework to transform the waterfronts (Foo, 2015). In Nigeria, the ancient urban waterfronts and their potentials developed are not renewed at the same rate urban settlements request for it further compounds the problems of the hemisphere. The absence of rehabilitation in these waterfronts for ages now has continued to generate crisis based on the fact that urban waterfronts experience decay, grow population and demand for the redevelopment which the government failed to actualise. The resolution of this identified and existing imbalance between Nigeria waterfronts and advance regions of the globe has always been a problem to urban planners, strategy initiators and bureaucrats and academicians ((Obafemi and Odubo, 2013). The framework for the considerate interdependence and interrelatedness of urban waterfronts and its renewal agenda or road map especially in Port Harcourt metropolis has been low in provision of a robust behavioural foundation for model and rehabilitation policy. Similarly, little empirical work survives on the abandonment of antediluvian waterfronts settlements and absence of rehabilitation in Port Harcourt borough. This observation poses enormous analytical challenges which the study is set to address. It is therefore necessary to empirically identify the redevelopment problems of spontaneous urban waterfronts and if the outcome of this investigation is capable of proffering solution for rehabilitation of urban waterfronts every decade.

II. LITERATURE REVIEW

Research studies have identified dissimilar purposes, stride and government failure to restrain environmental quality through rehabilitation of urban waterfronts in the global communities. A study held by Azlina, Yassin, Chris and John (2010) observed that majority of the developers were conversant with the course of action for riverfront development ideas proposed by the government despite the fact that it does not include riverfront projects. Furthermore, many Malaysians failed to support the strategies for reasons such as like insufficient control of environment and associated problems together with lack of specific regulation for waterfronts improvements. The recent work of Ogbonna, Ogbuku, Ngah and Ayotamun (2021) submitted that people dwelling in waterfronts are exposed to severe outbreak of epidemics and requires an urgent attention for comprehensive interventions from the government and other organizations to strengthen existing programs to improve the public health and quality of life of this vulnerable population. With the inspection of some cities in Europe, Rotterdam, Amsterdam, Hamburg and Antwerp, Fatma (2009) evaluated many cities in terms of assessment quality such as urban space/recreation, housing, cultural environment, land use pattern and infrastructure/mobility. In all the cities, the study considered strategy architects, black and white policy statements as the approaches that deduced the cities manners via development plans that manage to restate the acquirer environment and its contributions towards the improvement of quality of urban life. As such, Chien (2015) stressed that waterfront is a global issue that requires inter association of development components and bodies full of varied characteristics and development that relied much on previous and the final outcomes of development functions and values as the analysis bothered much on waterfront development project in Taiwan. Tanya (2017) buttresses that water bodies serve as the basic initiator for human life and development. Explained that waterfront changes delivers exceptional chances for evolving a vigorous urban image in line with the provision of chances for technical planning method for refreshing ground water through a larger and usual waterfront in the urban centres. Furthermore, the approach that integrate natural cognisant of the river in the form of city developmental draperies seems to be planned and suitable discussion from natural potential emanating from land as a biodiversity development for a zone for natural inheritance preservation of waterfronts, local and transient necessities of urban standard facilities such as large city greens and recreational facilities. Shimaa, Amr and Mohamed (2020) perceived waterfronts as the most challenging urban spaces that give a great opportunity for the urban development not only for the waterfront context but also for the whole city. According to them, communities around water bodies are full of features, which support to adapt the economic and social conditions through direct connection to trade, transport, and industry, recreational, and entertainment places. However, the global concern towards waterfront phenomenon and development of local hemisphere like Alexandria, the North Coast and Al-Alamen new city has not secured the same consideration when compare with some water abandoned zones on the Mediterranean.

The earlier research of Brian (2001) affirmed that global distribution of urban waterfronts and its renovation, previously and principally restricted to innovative republics, resumes influence on emergent nations for promoting conservation across the historic cities in the direction of cultural settings, tourism development and urban restitution. The article hammered on theoretical subject's upstretched and documented on the Lamu experience, a port city located in East African with urban conservation involving waterfront renewal that is making improvement via the assistance of local, national and international organizations. According, the problem of failure and renaissance were measured in respect of historical experience and present ideas and limitation. Similarly led to credibility is the exploration of Aatmika, and Jadon (2019) buttressed that

riverfront or urban rivers attracts higher population and demonstrate an urban strip including its general contributions for the entire city hemisphere. They explained that urban riverfront experience degradation, negligence, pollution and loss of all life supporting measures while the analysis pinpointed much on environmental protection and revitalization of riverfront through an integrated instrument termed river renovation and development of urban river front that encompasses physical, social, and cultural and heritage dimension of the river gives life to urban settlements for a second time. Azlina, Chris, John (2015) submitted that water bodies operate as respected natural endowment for human life, environment and general development. The work identified that residential waterfront growth has occupied available land, water amenities and incorporated as a trend feature alienations opinion of the expansion. The work also revealed that widespread opinion about water bodies complement a typical value of 59% to the assessment of waterfront property and attracted remodelling and good property districts. Bhavna (2021) concentrated most on the relevant worries to create the connexion between waterfront and urban arrangement in sutra area of Indian bearing in mind the diverse phases of the advancement age. The research objective anchored on the classification of the factors that institute the association and regulate how some of the factors are influenced. It also ascertains the motives that affect the establishment of the interrelationship. Finally the article brings about the forth disturbing conditions and proffers solutions for critical matters that require urgent attention to advance and rebuild the association among waterfront urban area. Yang and Jiaming (2014) clarifies that waterfront areas represent a multidisciplinary and multitasking issue in perspective of urban resilient development. Urban waterfronts, where the land of city meets a body of water, are unique and finite resources representing the best opportunities for community enhancement and enrichment. On the other hand, waterfronts are also high-risk areas, where the water-related disasters could seriously affect the long-term sustainability of urban environment. It is apparent from literature review that there is death in study on the abandoned waterfront and environmental problems in Nigeria. Available studies cantered on socio-economic, condition and characteristics of existing and undeveloped waterfronts. The gap in literature has made it imperative to the abandonment and none-rehabilitation of waterfront on the environment using Port Harcourt borough as analytical settlement.

Redevelopment Elevation of Urban Waterfronts Communities and Land Use Pivotal

By and large, the enthusiasm to developed and redevelop water front communities stand as a necessity; the reasons behind the scenario remains the fact that waterfront environment requires planning enablement and efficient infrastructures to operate as a formal settlement. As a critical environment that demanded easement for connectivity and movement of people, goods and services within and outside the vicinity, standard transportation land uses continue to be the livewire and scientific solution. However, any step or strategy to truncate or abandon the development and improvement of waterfront transportation network and its connectivity via air, land, rail and water transportation systems shatters the socio economic wealth of the residents. Waterfronts in the emerging kingdoms are serious centres for identifications; generation and investing on primary economic activities such as hunting, irrigation farming, fishing and lumbering sources that can serve as an indices for scientific development and redevelopment of settlement near the rivers, lakes, canals, and oceans. The elevation and integration of formal recreation opportunities and leisure activities in waterfront communities of developing nations rests critical lengths of life quality for all the people. The development of recreation and tourism chances in waterfront destinations attracts economic growth (commercial, agricultural and industrial) and if tourism is eventually established in waterfronts communities, standard of living, job opportunities and economic status of the area must increase and without, the target of technical planning is piecemeal.

The Waterfronts Environment and Physical Planning Attention in Nigeria

In spite the incapacitation, actions and nature of government on rehabilitation of urban waterfronts and upgrading of its potential opportunities, the region retains residential, industrial, commercial, institutional and recreational land uses in spontaneous form and serve as miniature everglade land useful for farming, lumbering, hunting and other primary economic activities. Accordingly, soft and hard trees found in the waterfront communities are internal flourish though serve as green belt, wind breaker, higher carbon absorber and infiltrator of fresh water and sea breeze to the environment. The waterfronts surrounding also retains many environmental resources and support other tremendous biodiversity that could be monetized in human settlement such as village, community, neighbourhood, district, suburb and urban areas that requires physical planning attention. But the full rehabilitation of waterfront environment and public participation through physical planning must embraces ecological, cultural, and historic resources. The rebuilding of waterfronts regions of many urban areas improves ecological interest and stimulate mixture of land uses. However, environmental stakeholders like architects, estate surveyor and engineers are hunger of involving in waterfront redevelopment to actualise rebirth working, functional, aesthetics and smart environment.

III. METHODOLOGY

For the purpose of this study, secondary and primary data sources were paramount while the targeted population and waterfront resident are captain amangala, marine base, eastern bye-pass and creek road of Port Harcourt. The secondary sources of data were generated from preceding work on abandonment of waterfronts and related areas from published and unpublished materials. The published materials were derived from e-books, project, research and thesis work. Others are conference/seminar and working papers, official records and reports. As the primary sources of the information comprises variables on waterfront redevelopment and antediluvian which aided the preparation of questionnaire and personal interview with people residing in the area contributed positively. Moreover, the questions were structured using 5- point Likert scale: very low = 1, low = 2, fair = 3, high = 4 and finally to very high = 5 whereas the questionnaires contained five major sections and 44 questions. The collected data was subjected to analysis through the aid of both descriptive and inferential statistical method. The total number of 210 households was sampled and the questionnaire administration targeted the household heads.

Table 1: Antediluvian and uninhabitable population of selected waterfront Settlement

S/N	Settlements	Population	Households	Sampled Household
1	captain amangala	25,643	13,372	67
2	eastern bye-pass	23,241	11,506	43
3	marine base	22, 456	3,207,	31
4	creek road	27, 452	7,603	69
TOTAL		98,792	35,688	210

IV. RESULT AND DISCUSSION

Physical Indicators of Abandonment and Antediluvian Urban Waterfronts Settlements

The physical findings and indicators of uninhabitable and abandonment urban waterfront was measured on the 5 point scale or item and furnished with a mean index value (MIV) of 2.6759 (Table 2). This analysis revealed that residents of the urban waterfronts are all aware about the deteriorated/ dilapidated condition of the settlement buildings that marks the relative index value of 3.2167 in continuation with poor environmental quality (2.9750). Others are unrestricted population (2.8000), blighted and slum (27917), earth roads and foot path (27839) and poor control of water biodiversity (2.7167), hide out for cultist(2.6667) kidnapers (2.7750), child traffickers(2.6333). However, the uncontrolled settlements have lower value than the mean index values. Hence, it is of higher implication in aiding and abating the problems of unlucky waterfront. See table 2 below

Table 2: Indicators of Uninhabitable and environmental problems of urban waterfront

ITEMS	VL	L	F	H	VH	TWV	RIM	MIV	RK
dilapidated buildings	06	10	12	13	50	120	3.2167		1
Poor aesthetics & facilities	10	12	14	24	40	110	2.9750		2
unrestricted population	11	16	23	25	45	90	2.8000		3
Blighted/slum	15	20	25	30	35	105	2.7917		4
earth roads / foot path	11	17	22	32	40	80	27839		5
Control of biodiversity,	10	12	14	24	50	110	2.7167	2.6759	7
hide out for cultist	06	10	12	13	50	120	2.6667		8
Kidnapers	11	16	23	25	45	90	2.7750		6
child traffickers area	15	20	25	30	35	105	2.6333		9
higher density	07	10	12	13	49	120	2.5678		10
uncontrolled settlement	11	17	22	32	40	80	2.4015		11

Source: researcher’s survey 2022

Degraded Land Uses of Urban Waterfront Settlement and Allied Environmental Matters

The itemization and investigation displayed on table 3 detailed how substantial percentage of the urban waterfronts inhabitants proved critically about the failure of government to rehabilitate waterfronts degraded environment and various land use activities especially in developing nations like Nigeria. In addition, negative and strong understanding occurs as failure to rehabilitate urban waterfronts increases the degradation of various land uses or physical improvement in the urban vicinity of Port Harcourt and beyond. From the statistics, trend and analytical viewpoint, the study encompasses the five principal dilapidated land uses; residential, transportation, commercial, industrial and recreation. However, the analysis was realised through the succour of standardized coefficient (beta) regression statistics ($R^2 = 0.967$, significant at 0.01) clarifying 96.7% of spatial deterioration common in urban waterfront communities. The Adjusted recorded $R^2 = 0.973$, designates 97.3% confidence of prospect for urban waterfronts abandonment, spatial disorder and slum development in all the spatial activities (residential, commercial, industrial, transportation and recreation).

Residential: in the same direction, the degraded situation of spatial activities in residential land use of the uninhabitable and contravened physical development standard established unbearable to the majority of existing urban waterfronts communities in Port Harcourt at [$\beta = 1.053$; $t = 2.985$; $p = 0.000$ (< 0.01 significant level)]. The inference is that absence of urban waterfronts rehabilitation decreases formal settlement and sustainable housing for human habitation and as well serve as reduction mechanism for property values. The findings detailed that about 1.053 or (1%) of quality houses are recorded at residential land uses of uninhabitable waterfronts on annual basis. The scenario decreases physical and new property development and spread of informal houses all over the waterfronts community. The details forecasts that improvement of urban waterfronts attracts poor and uncoordinated residential spatial arrangement.

Transportation: the aspect of improving various class of road (distributor, collector, access, foot parts, dead end and earth roads found in the four cardinal point of urban waterfronts fail as a result of neglect and non-revitalisation and accounted for [$\beta = 1.039$; $t = 7.753$; $p = 0.000$ (< 0.01 noteworthy level)]. The analytical study put forward the strategies responsible for non-rehabilitation of waterfronts and declines in spatial connectivity of easement, land uses and neighbouring settlement. Apart from that, many neighbourhoods in different urban waterfronts found it difficult to access various spatial activities and boundary settlement as a result of broken-down and unpaved road network. The analysis also directs that all class of easement (distributor, collector, code sac and marine ways etc) gave a statistical account of (1.039), entailing that all the street, block of plots, neighbourhoods and settlements found in various waterfront enjoy only 1% distance of paved and unpaved road (easement) considered as life wire and connectivity of environmental activities, settlement and movement of goods and services from one location to another.

Commercial: from direct study on commercial environment segment and un-rehabilitated, abandoned urban waterfronts accounted for correlation coefficient of [$\beta = 1.018$; $t = 2.935$; $p = 0.006$ (< 0.01 substantial level)]. This suggests that neglect or refusal to improve the environmental condition of urban waterfronts holistically decreases commercial value, prospect and also knockdown the economic sustenance of the waterfronts generally. However, the sustenance of urban waterfronts through commercial awareness may be actualized through proper mapping, planning and regulation of compactible and incompatible commercial activities while 1% of commercial activities contribute in the sustenance of urban waterfronts economy due to unplanned land uses.

Industrial: The description for the connotation on failure to rehabilitate urban waterfronts and improved industrial actions stood and gave correlated coefficient of [$\beta = 0.135$; $t = 2.296$; $p = 0.028$ (< 0.05 significant level)]. Putting the record onward, 0% employment generation from industrial establishments had a statistical commensurate of (0.135). Such environmental problem reduces income generation, opportunities and intra city relationship as non and little industrial dimensions of urban waterfronts increases unemployment experience of the timing youths characterized by inability to provide for their basic necessities such as food, clothing and shelter. The situation has compelled urban waterfronts settlements to serves as a home that lack control and accommodate populace below least income group (hoodlums, kidnappers, human traffickers and assassin)

Recreation: the assessment that focused on recreational utilization and un-rehabilitated waterfronts settlements from the physical planning shown statistics interpretation of [$\beta = 0.123$; $t = 2.988$; $p = 0.005$ (< 0.01 significant level)]. This implies that only 1% (river, stream, sea or natural waterlog spaces) gave recreational services without money making venture. Apart from that, the deaf ear of government in terms of redevelopment of urban waterfronts rawhides the recreational culture and tourism nature of waterfronts. The trend contributes to the reduction of employment opportunities and government

generated revenue by not creating satisfactory recreational facilities through rehabilitation of urban waterfronts. Moreover, the analysis summarised that just 2% of the annual and physical development of recreational activities never incorporate urban waterfronts. Instead, the waterfronts and its entire land uses are demolish and allow to lies in fallow.

Table 3: Degraded Land Uses of Urban Waterfronts Settlement and Allied Environmental Matters

R ² = 0.967		F – cal =463.345			
Adjusted R ² = 0.973		P = 0.0000			
Standard erro = 4500.35244 α		sig = 0.01			
Adaptable	Std coefficient (β)	T	P	Significant	Determination
Residential (A)	1.053	2.985	.005	< 0.005	Accepted
Transportation (B)	1.056	2.296	0.28	< 0.0028	Accepted
Commercial (C)	.118	2.995	.006	< 0.006	Accepted
Industrial (D)	1.039	7.753	.000	< 001	Accepted
Recreation (E)	1.123	2.985	.005	< .001	Accepted

Sources: survey 2022

V. RECOMMENDATIONS

1. To lessen unplanned urban waterfronts communities, government should rehabilitate and provide adequate infrastructural facilities. The provisions or restoration of these necessary facilities will embolden real estate developers to participate in purchase and rehabilitation of dilapidated and deteriorated residential buildings to attract the occupancy or tenancy of households from different part of the urban and rural hinterland.
2. Revitalisation of urban waterfronts should also reflect more on commercial and industrial related activities that generate income, employment opportunities for the people within and outside the urban waterfronts to curb unemployment, unlawful actions and deter the area from serving as an uncontrolled zone that quarters hoodlums, kidnappers, human traffickers, assassin and provides basic expectation of the timing youths residing indoors and freestanding in urban waterfronts.
3. For the fact that transportation activities serves as the live wire for other environmental activities including the movement of goods and services in urban waterfronts, urban policy makers should take into consideration the mode of transportation for all the micro and macro communities when re-planning existing urban waterfronts. There is need also to review existing patterns of waterfronts with the aim linking it to other communities through transportation land uses.
4. Strength should be put to available open rivers, streams, sea, waterlog and other natural potentials that constitute recreational services of urban waterfronts to built and rebuilt relaxation, money making reasons or actions and strengthen the recreational culture and tourism nature of waterfronts.

VI. CONCLUSION

This research analysis demonstrates the reality of antediluvian waterfront and absence of rehabilitation in Port Harcourt urban space. Two null hypotheses framed in the analysis are; there is no strong relationship between ramshackle urban waterfronts and degraded land uses (residential, industrial, commercial, transportation and recreation); the strong issues of inhabitable nature of urban waterfront cannot be determined. The findings identified degraded land uses / physical conditions for non-rehabilitated urban waterfronts communities. The affected and uninhabitable indicators namely: dilapidated settlement buildings, poor environmental quality, unrestricted population, blighted and slum condition, earth roads and foot path, poor control of water biodiversity, hide out for cultist, kidnappers and child traffickers.

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