

CONTAINER HOUSING: A SUSTAINABLE APPROACH TO LOW-INCOME HOUSING PROVISIONS FOR THE URBAN SLUMS IN IJORA-BADIA LAGOS

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ABSTRACT

This Study makes a case for the inclusion of container as an option for low income housing in Ijora Badia of Lagos State. Objectives of the research is to examine the effectiveness of housing policies, feasibility of container for housing in Ijora, Badia; Users perception of container housing alternatives; proposals for prototypes of container housing modules to be adopted for use in Badia. The study adopted a field survey research design. Situational analysis of the site was carried out as well as an interview with stake holder companies, and representatives of the slum dwellers as well as various options explored various options on alternative material solutions were explored. Secondary data was collected from the Lagos State Government website, the research publications, amongst others. A design proposal was made with a nos. of 11ft sized containers to produce 9 nos. one bedroom apartments (low-rise) one a plot of land. The results revealed that container housing, although not yet well researched in Nigeria as alternative housing option, is quite resourceful if explored for housing provisions; it is modular, flexible and adaptable to whatever space constraints may exist on the site. Failure by the government to adopt alternative housing materials in this present times will leave housing deficiency in Nigeria an enigma.

Keywords: Container Housing, Container, Urban Poor, Sustainability, Low Income, Slums

INTRODUCTION

The UN-Habitat, in 1982 defined slums as economically depressed neighbourhoods in a town or city whose social components are deprived of the means of sustaining the socio-economic fabric of the area. Most of them lack basic shelter while their inhabitants generally live under circumstances that are hazardous to life and health (Garau et al.

2005). The Lagos State government projected to construct 1008 housing projects of various building types as a sign of social inclusiveness and alleviate the blight of those who experienced humanitarian crisis of forceful eviction and economic hardship in the last Badia demolition. The goal of the state government is yet to be a reality, as the residents due to previous evictions of the urban poor to accommodate the rich like the eviction process in Maroko in 1990 have lost hope in them. In the Maroko 1990 experience, people were evicted and luxurious houses were installed, a situation some called social development and urban upgrade. (Agbola, T and Jinadu, A. M 1997). The deteriorating state of Ijora-Badia is on the increase leaving the small children and their mothers as the most vulnerable. Urban Slums can be a very dangerous spot for the wide spread of diseases and infections and these can be very threatening to the larger city. No research on housing provisions would be complete without considering the affordability and cost analysis to support feasibility of any choice of housing. Container housing, as a Concept of Modular Construction, is cheap lightweight and adaptable. This research is focused on providing adequate information to establish the alternative to low-income mass housing that will respond to the urban poor housing needs.

This housing conception will be used to maintain the social cohesion to promote healthy living in urban areas. Affordability is related to Social sustainability because the ability of the intending users to acquire it is paramount. The journey to fulfilling the millennial development Goals on Badia Lagos can begin on this premise, "Badia 1008 Container Housing.

STUDY AREA

Lagos ranks as the 9th largest Megacity and the 16th largest city in the world. This city with 252,000 people in 1952 was projected by the United Nations to have a population of 24.4 Million in 2015 even though the Lagos population 2016 say 21 Million. The study is set in the Lagos Metropolis, Lagos State, and South Western Nigeria. Lagos Metropolis is situated within latitudes 6° 23' N and 6° 41' N and longitudes 2° 42' E and 3° 42' E. Badia in Lagos is one of the suburbs in the Apapa Local Government of Lagos State and it is located geographically within latitude 3° 23' and longitude 4° 22'. It is bounded in the North by the Lagos Badagry expressway link bridge into the National Theatre. A railroad to Apapa forms the eastern boundary where these containers are expensively returned empty to the port and shipped back to respective take off countries, instead of an innovative consideration of

the functions it can serve. The south bordered by Ajegunle, one of the suburb Lagos Slum.

Figure 1



The Railway Line Passing through Badia to Apapa

Figure 2



Badia Filled with Shanties and Poor Hygiene for its Residents

Badia was originally a swampy area and water logged village where residents could reach their homes with the use of Canoes in the very early 1910s. Badia was the then Oluwole Village in the 1919 developments down till 1960s when the Lagos State town planning

authority together with the federal government embarked on zoning some area for reclamation that led to the industrial settlements that exist till today in the neighbourhood, (Ijora Cold Storage, 7Up etc.)

Badia about 160 hectares and a population of over 600,000 people is one of 42 slums in Lagos identified by the United Nations and is underserviced but highly dense in population. It is noted that 75% of residents live in one room household with density of between 5 to 7 persons, while between eight and ten families live in a 'face-me-face-you structure', share the same toilet, kitchen and bathroom, Encomium, (2015). It borders the main road to the Nigeria Port Authority where we have the ingress of thousands of containers.

Lagos is numbered the 9th largest megacity in the world; this poses the United Nation Millennial Development goals to limit the total of 1.4 Billion global slum population by 2020, (Goal 7, target 11), Sharas S. (2006). We have 4 years left achieve this. The main reasons why we construct houses is for shelter, comfort and infrastructure and then aesthetics. The scope of this paper requires a comprehensive data containing the economic, social and demographic variables of slum households as well as indicators of housing characteristics, including costs, rents, size and quality with respect to the container housing alternative.

METHOD

Housing Income and Cost of Living in Badia

There are 539 residential buildings in Ijora-Badia, Lagos: 75% live in one room household with say 7 persons and 20% which are the 10 families that live in a face-me-face-you, (FMFU) and the remaining 5% are the persons living in 'make-shift houses' and sleeping in vehicles, Tenement Rate Department, Apapa Local Government(2011). The income structure was obtained via physical interview with the slum dwellers and their community representatives. An average person in Badia can afford to save N1000 per day for housing needs. People in slums can afford to live in better housing unlike the present squalor if their housing is suited to their income. Over 40,000 people were displaced when the Lagos State government in 2013 decided to demolish shanties and stalls before the relief by the present administration. Badia is called a slum, yet people from other part of the country, even from our neighbouring West African countries, especially artisans from Togo, Benin Republic and Ghana live there. The problem of insufficient shelter usually gives rise to a higher cost of rent in any place. Research finding shows that a room in Badia is an average of N2500/Month, (N30000 per year) with a year or

Oginni A. O., Mayor-Olabiyitan O.

two years as requirement before rent. It is a not a strange news that some people sleep in buses and some sleep beside the railway track.

Data Collection

The Data acquisition started at a forum for sustainable alternatives to housing provisions for the urban slum in Lagos, organised by the Arctic Infrastructure and Heirich Boll Stiftung July 21st, 2016. The presentations from innovative building professionals and architecture students of the University of Lagos started the reactions of the slum dwellers representatives in the forum and the Data were collected by face-to-face representation responses. Some constraints were observed especially in the aspect of the salty waters in some areas and the devastating effect on the metal containers but this is a constraint which architectural design can ameliorate. Additional Subsequent data were sourced from published literatures, the website of the Lagos State government, newspaper, journals and the internet. The Container as a by-product has standard sizes according to the **Figure 3** below.

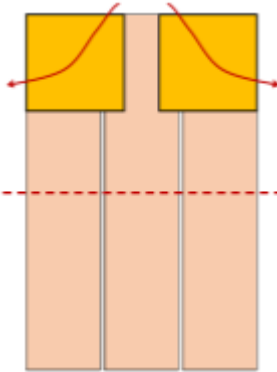
Details of Container Sizes

		20' CONTAINER		40' CONTAINER	
		IMPERIAL	METRIC	IMPERIAL	METRIC
EXTERNAL DIMENSIONS	Length	19' 10"	6.058m	40' 0"	12.192m
	Width	8' 0"	2.438m	8' 0"	2.438m
	Height	8' 6"	2.591m	8' 6"	2.591m
INTERIOR DIMENSIONS	Length	18' 10 5/16"	5.758m	39' 5 45/64"	12.032m
	width	7' 8 19/32"	2.352	7' 8 19/32"	2.352m
VOLUME		1,169ft ³	33.1m ³	2,385ft ³	67.5m ³
MAXIMUM GROSS MASS		52,910 lb	24,000Kg	37,200Kg	30,480Kg
NET LOAD		48,060 lb	21,800Kg	58,820Kg	26,680Kg
AREA	Exterior	158,972sq ft	14,769 m ²	339,041 sq ft	31,498m ²
	Interior	143,764 sq ft	13,342 m ²	304,607 sq ft	28,299 m ²

Figure 3

The demonstration of the conversion process of a container to a liveable space is seen in figures below. In figure 4, Option 1 is the combination of 4Nos of 40 Feet ISO Containers to make a 6 Nos Studio apartments. Option 2 is the combination of 3 Nos of same 40 Feet ISO Containers to make a 2 Nos 2 Bedroom Apartments. Considerations were made for cross ventilation in each space.

Option 1



Option 2

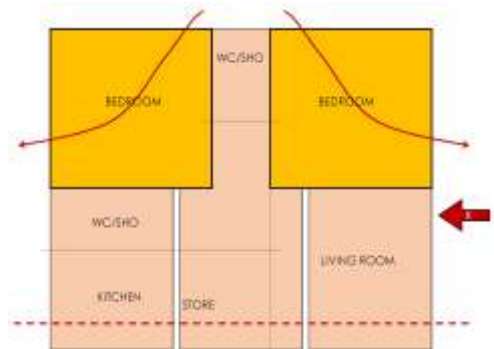


Figure 4 : 3 No's 40 feet Containers for 6 Unit of Studio Apartments



Figure 5 : 3 No's 40 feet Containers for 2 Unit of 2 Bedroom Apartments



Figure (5b): 3D Schematic View of the Options above



Figure 6 above explains how a total of 10 Number ISO Containers will provide the followings on a 36m by 18m standard plot of land.

1. 2 Units of 2Bedroom Apartments
2. 9 Units of studio Apartments
3. 5 Nos Shops

The container has been designed to withstand up to 9 fully laden containers, able to withstand extreme weather conditions. (Intermodal shipping containers and Architecture) This strength and the possibility of 9 stacks allows for designing 3 to 4 floors structure high enough to be seen from a distance.

Proposed Sustainable Development and Implications

There is need to enhance vernacular construction and its applications, both for which could be used to cope with the increasing needs of our expanding urban cities. In addressing a cohesive environment like Badia, stake holders must consider the interaction between the local infrastructure and systems, the neighbourhood and the greater surrounding city, Lagos, (Apapa, Iganmu and Lagos Island Creek). Badia can become a container village like the Mulu Village of addis Ababa in Ethiopia. (Zegeye Cherenet et al, 2012).

See figure 7 below



Figure 7- Mulu Plaza In Addis Ababa
Source: Zegeye Cherenet et al (2012)

CONCLUSION

Container housing can be explored as a suitable means of providing housing for the Urban Poor in Ijora Badia. Presently, Lagos is littered with lots of containers and is in use for retail shops and other commercial purposes. On a large scale it can be proposed for modular of apartments that can allow for flexibility and adaptability to each user's needs. On the whole, this will culminate as a sustainable option in mitigating urban housing deficits in Lagos state.

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Oginni A. O., Mayor-Olabiyitan O.

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