



POLITECNICO
DI TORINO

Honors Thesis

MASTER OF SCIENCE IN SUSTAINABLE
ARCHITECTURE

Abstract

**The Review of the Kaduna State Millennium City Master
Plan with a Proposal of Residential Building Typology**

Tutor

Prof. Roberta Ingaramo
Mario Artuso

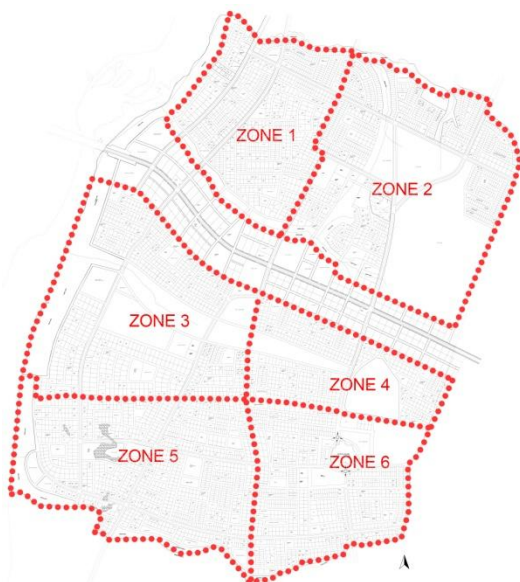
By:

Hindatu Bello Dangaji

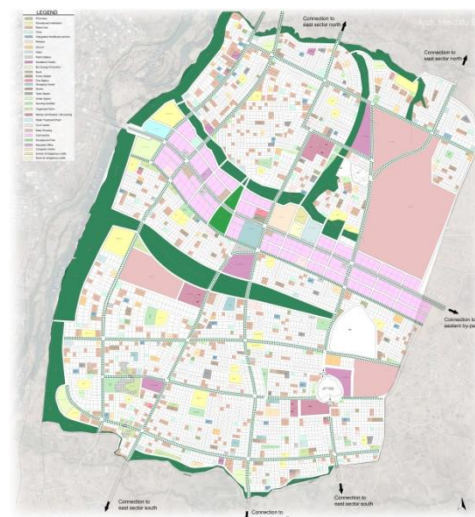
December 2015

Kaduna, the capital of present-day Kaduna State is located in the North Central region of Nigeria, West Africa. The Millennium City, which is located on the Eastern Development Area Centre, is one of seven geographically-determined metropolitan outer city areas by the Max Lock Partners, who were commissioned in 2007 to review the existing Master Plan of the city of Kaduna. The Master Plan obtained for this site (960 hectares) from KASUPDA (*Kaduna State Urban Planning & Development Authority*) which is supposed to house about 100,000 inhabitants was initially analysed on an urban scale in this thesis, where the form was noted to be similar to the one proposed by the Max Lock Partners but noticeably different in the choice of services and functions provided. After a careful study, analysis and consideration, a revised proposal was produced where services were shown to be evenly distributed throughout the whole plan in order to avoid the concentration of basic services needed by the inhabitants in only a specific area.

To facilitate this, using the main access roads, the Master Plan was divided into 6 “residential” zones and a central business district located along the existing road which created a main “axis” cutting horizontally across the Master Plan. A list of services considered to be essential to enhancing the living conditions of the inhabitants was made, and it was ensured that there would be a presence of every listed service in each zone. In the zone studied (*Zone 6*), the mass housing system was analysed further on an architectonic scale. Four solutions to the mass housing system were proposed. Two of these solutions represented the existing approach to mass housing in Nigeria while the other two were an attempt to provide a more sustainable solution.



Zone Division



Revised Master Plan

The first 2 solutions (A and B) show a classic distribution whereby much of the space is used up for building construction, meanwhile, almost no services are provided within the mass housing system. There is also the presence of the use of the new “Roof-Trend” where the roofs are built as high as 6metres (and most times even higher). However, considering the climatic conditions found in Kaduna, having such roofs is incompatible with the environment. In both solutions, the same distribution of space is used with the only difference being that in Solution A the building type depicts a bungalow while Solution B shows a 2-storey building.

In the third solution (C), services in the form of sporting facilities are located close to the main entrance leading into the area dedicated to the mass housing which can be used as a medium of interaction between those living within and residents in the city. After studying traditional buildings in Northern Nigerian Architecture, some features such as a flat-roof system and the use of the “Arewa” symbol in the form of an external burglar proof, were used to blend traditional external character with a “modern” internal distribution within the building. This was done in order to try to break the “trend” and possibly create a new one by trying to find harmony between the "traditional" and "modern" forms of architecture.

In the final solution (D), the same form of external distribution is maintained with the inclusion of bore holes. While in the previous 3 solutions the target was for the “medium-high” income family, in Solution D, two different building types were proposed. One for the “medium-high” and the other would be more affordable. Both buildings also feature various elements from traditional Northern Nigerian Architecture and also an internal distribution that is “traditional” in its approach yet “modern” in its realisation.

This intense study was achieved not only with the assistance and guidance of my tutors, but also from Dr. Theis, the Director of the Max Lock Centre, University of Westminster London, whose immense and invaluable contribution was pivotal in the direction to which this thesis was taken. The idea behind this study was to try to find a "sustainable" solution not only on an urban scale but on an architectonic one as well. This in turn will ensure that these areas, especially those dedicated to mass housing, do not become slums in the future or abandoned midway through the project, as unfortunately is the case in most mass housing projects in Nigeria.