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THE INTEGRATION OF A MIXED-USE DEVELOPMENT FACILITY IN AROMA AXIS, AWKA, ANAMBRA STATE:A CASE OF SERIOUS NEGLECT OF URBAN DEVELOPMENT ATTENTION AND POOR ZONING OF SETTLEMENTS.

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ABSTRACT

Urban centers all around the world are striving to re-orient themselves to promoting ideals of human engagement, flexibility, openness and synergy, that thoughtful architecture can provide. From a time when solitude in one's own backyard was desirable, today's outlook seeks more, to cater to the needs of diverse individuals and that of collaborators. This thesis is an investigation of the role of architecture in realizing how these ideals might be achieved, using Mixed Use Developments as an urban planning strategy to facilitate the co-existence of human activities such as housing, business, recreation, socio-economic activities, and infrastructure. The aim of this thesis is to study and ameliorate the urban development problems of Aroma junction, Awka and to propose the design of a Mixed-Use facility that will be integrated into Aroma junction using spatial organization of human activities as a tool for creating a comfortable urban environment. Inthis paper, a typology of mixed-use developments is revealed to identify its major components. This typology is then applied to the case study area, Aroma junction Akwa, which is a major urban transformation area. The research is based on the combination of both quantitative and descriptive analysis, to describe in detail, the phenomenon observed using numerical data to justify its observations. In conclusion, a good mixed-use design fosters a more vibrant and livable urban environment and nothing has greater impact on improving life in the city.

Keywords*:* Urban, Awka, development, mixed-use, Aroma junction**.**

Introduction

Cities and towns in Nigeria are experiencing uncontrolled development known as urban sprawl. Sprawl takes place either in radial direction around a well-established city or linearly along highways (Torrens, 2006). Sprawl in Nigeria, Awka capital territory to be precise consists of informal housing and commercial developments on the urban periphery, on land that is mostly privately owned, sold in single small plots (Chuwante et al 2019). The Awka capital territory consist of north and south local government areas, where the Awka-south local government area has been regarded as the main drivers of urbanization in Awka metropolis (Actda, 2018). The Aroma axis which is the focal point of study has been characterized by high population growth rate, concentration of development activities within its axis, traffic and human congestions, rapid growth of formal education and rural-urban wage differentials (Babanyara, et al. 2010). Since the city is regarded as the engine of growth which propels state economic development; the effects and problems emanating from the town's informal urban spatial arrangements, have undoubtedly

constituted critical challenges to sustainable urban development.

In spite of increasing knowledge of modern planning and number of planners, physical development and planning in Awka Capital Territory of Anambra state, the Aroma-axis has remained a theatre of chaos and disorder. Due to the issues of non-compliance with road setbacks in Awka capital territory (ACT), resulting to different kinds and magnitudes of environmental problems like road accident, human congestion, traffic congestion and flooding (okafor, 2020).

Awka metropolis witnessed a remarkable growth between 1986 and 2016 to have more than tripled spatially from mere 3444.48 Km2 in 1986 to about 11,452.46 Km2 in 2016. This built-up area with human activities led to increase in air, water and noise pollution in the metropolis. Pressure on available facilities and poor waste management practices was perceived to be as a result of unprecedented growth of Awka town between 1986-2016. land uses were unplanned, and zoned haphazardly with high density developments within towns such as Ifite, **Aroma**, Okpuno, Mbakwu, Ntoko, Ndikpa, Ndiora, Isiagu, Nibo, Urumi and Umunike. Awka town is a major indigenous settlement that has grown organically without much planning and has the highest record of encroachments. The town accommodates many low-income workers from neighboring local government areas (Chuwante, 2019).

These characteristics and recent trends and evidence that Awka is urbanizing at a fast rate and do not have a comprehensive plan to tackle the rate of urbanization. Massive world urbanization is accompanied by an alarming tendency for urban sprawl of city areas. Leading specialists in architecture, urban planning, economics, sociology, ecology, etc. are worried about it and try to find new, more rational urban planning and space-planning solutions to meet the challenges of modern society (Generalova et al,2015). In these circumstances, the concept of New Urbanism based on finding a totally new typology of buildings seem appropriate and develops rapidly. This typology is based on the principle of multi-functionality. The term multi-functionality denotes the ability of a large system to perform many functions. Multi-functionality as a phenomenon of urban environment has been studied by many researchers. In the early 80's A.E. Gutnov (a Soviet architect and a theoretician of architecture and urbanism) created a term urban layout, saying that it was a relatively separate, functionally connected area of spatial environment, within which a set of basic types of social activity, resulting from the present level of society development, is performed. He stressed that the basis of an urban layout was a framework, which defined the spatial form of the modern city and had an ability for growth and transformation. Such a framework included highways and transport nodes, multilevel spatial structures with an extensive network of internal communications (Gutnov,1984).

A.E. Gutnov also emphasized the degree of a city's communication characteristics: meaning, the intensity of its territory development and its connection with the efficiency of location and spacing as a value measured by time spent on traveling around the city because of basic social necessities (Generalova, 2015). Some

earlier statements about the necessity of an urban multi-functional development sounded mostly as criticism of cities territorial zoning (based on functional processes typical for a city). Recent studies, however, see the framework of the city in a new light as there is an urgent need for spatial concentration of urban realm in both vertical and

horizontal direction. There is an active search for a modern innovative concept of a compact city with new types of buildings, which are developed as integrated mini-cities providing high density residential development. Here, we find it important to emphasize that high density residential development will be able to satisfy requirements for high quality of life only through the integration of various urban services that contribute to the formation and full development of the personality, hence the concept of **MIXED-USE** was coined (Generalova ,2015).

Mixed-use development is a type of urban development, urban planning or a zoning type that blends residential, commercial, cultural, institutional, or entertainment uses into one space, where those functions are to some degree physically and functionally integrated and provides pedestrian connections and road networks (Raman and Roy 2019).

In recent years, mixed-use development has been one of the hot topics for development conferences and urban planning conventions in Europe and the United States. Developments that provide a "live, work, play" community have been heralded as key components of urban regeneration, infill, compact cities, New Urbanism, Smart Growth, and sustainable development. Niemira (2007) suggests "Mixed-use development is quickly establishing itself as a distinct product type and a growing trend that is transforming the real estate landscape." Yet mixed-use developments are nothing new with examples as early as the ancient Greek agora and medieval market squares. When the major mode of transportation was walking, people had to live, work, and play within the same neighborhood. With the rise of alternative means of transportation, residents fled the congestion of polluted neighborhoods around industrial facilities to reside in cleaner suburbs, and in the U.S, they supported government regulations through zoning that would separate and protect their homes from offensive land use (Hoppenbrouw and Louw, 2004).

Urban spatial structures are shaped by market forces interacting with regulations, primary infrastructure investments and taxes. They are usually the unintended result of unforeseen consequences of policies and regulations that were designed without any particular spatial concerns (Bertaud, 2004). However, different urban spatial organizations perform differently. For instance, some urban shapes are unfavorable to the development of public transport; others tend to increase the efficiency of public transport while reducing residential floor consumption. Urban spatial structures are very resilient and they evolve only very slowly. For this reason, a city's spatial structure significantly reduces the range of available development options (Bertaud, 2004).

The spatial structure of large cities evolves very slowly and can evolve only in a few directions. On a large scale, land that has been developed can never be brought back to nature. Planners should therefore have a good understanding of the potentials and liabilities inherent to the current spatial organization of the city in which they work, and in other to effectively distribute activities within the city, they need to be aware of the zoning policies and ordinances that govern such areas. In many developed countries where regulatory

zoning plans are used as the principle means to control development (Bäing and webb, 2020). zoning is a powerful policy tool for land-use planning, which has a broad and significant impact on the spatial distribution of economic activity (Shertzer, Twinam, Walsh, 2018). City zoning was initially proposed as a method that was supposed to solve spatial organization problems with area planning that generally controls the built environment, offering numerical parameters for the urban form (Kolosha and Zavalniy, 2019). zoning is a city planning documentation of the local level that is developed to determine the conditions and restrictions of the use of the territory of settlements for urban planning needs within the determined zones (Dipromisto, 2018).

The concept of mixed-use is guided by zoning of spaces that develops a framework for new urbanism that responds to new social and economic needs of population growth, vitality of a city,and the spatial organization of settlements (Stead and hoppenbrouwer, 2004). The application of mixed-use zoning within the Aroma axis will encourage the coexistence of complimentary urban land uses, and is a very powerful tool in creating livable, attractive and sustainable urban atmosphere.

Aim of Study

The aim of this research is to study and ameliorate the urban development problems of Aroma junction, Awka and to propose the design of a Mixed-Use facility that will be integrated into Aroma junction using spatial organization of human activities as a tool for creating a comfortableurban environment.

Research Methods

This research investigated the urban development problems of Aroma junction such as housing and traffic congestions, flooding, road accident. Vehicular traffic flow at peak hours within Aroma junction, population of residence, population of settlements and activities, percentile occupation of residence, and statistics of housing conditions in the study area. The research is based on the combination of both quantitative and descriptive analysis, to describe in detail, the phenomenon observed using numerical data to justify its observations.

Findings

During the course of the research, traffic flow at peak hours at Enugu-Onitsha expressway was studied using poissons relationship of traffic volume and relative standard error.

Vehicular traffic flow at peak hours

The vehicle traffic flow on a road can be expressed

$$V = 300 \frac{M + (O-P)}{t}$$ Poisson ***relationship of traffic volume and relative standard error***

Where V = 5 hour estimated volume

M = vehicles met from opposite direction
O = vehicles overtaking the test car
P = vehicles passed by the test car
t = time of the run

Number of settlements by functions in Aroma junction

Functions	Number of settlements
Residential	137
Commercial	93
Industry	8
Entertainment	36
Religion	8
Total	282

Analysis of activities in the area of study

The methodology helps us to analyze the Aroma junction in a systematic way. Yet, the analysis occurs mainly from a design perspective (physical aspects), although functional aspects are also important. One of these functional aspects, that is the type of businesses that have settled in the Aroma junction and the perception entrepreneurs have of the area. To carry out the research an observational method was used in analyzing the study area. The researcher analyzed the type of businesses, the type of accommodation for each company and employment in the area. From the dataset a structured random sample was drawn for a survey. It can be concluded that the Aroma junction has a total of 145 businesses of which the majority are retail stores and plazas, institutionalbuildings and religious centers.

Estimated Population of the study area by national population commission

Data gotten from the national population commission was data from the 1992 consensus. Anestimated projection calculation was applied for the purpose of the research.

Population as at
2006 – Male 28335,
Female 29890, with
a total of 58225.P1.
P0 (1+2.8%)n
P1- current year

P0 – population of 2006 consensus

n- annual difference between consensus year and current year

P1. 58225 (1+2.8%) 29 So therefore, population projection of residence is 67206.

Settlement Patterns

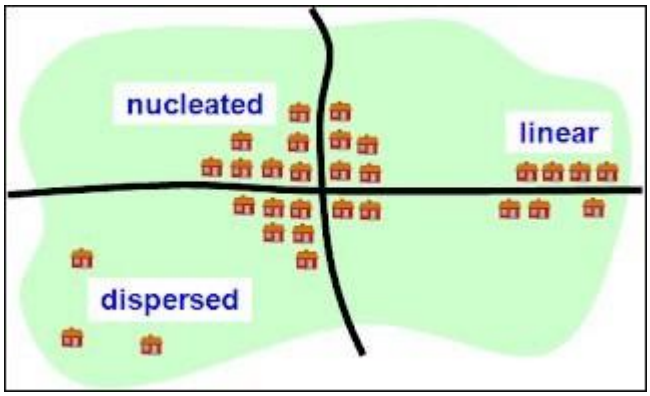


Fig 1. Diagram showing types of settlement patterns
Source: Researchers field work

Awka town comprises two distinct sectors, namely the built-up older portion that is overcrowdedand unplanned with poor road system and the sparsely developed part with open land surroundingthe houses. The open area is north of the Enugu- Onitsha expressway and has been primarily usedfor agriculture. The pattern of built –up and open sections is applicable to most communities in the Capital Territory. With each of these communities having this dual nature is noteworthy for planning purposes to maintain the peculiarities. The settlement pattern of the aroma axis is dense and nucleated.it is not characterized by any specific pattern, as the settlements are dispersed irregularly.



Plate 1.0 Aerial view of Aroma junction
Source: Researchers field work

Conclusions

The renaissance of the mixed-use building continues to revitalize our downtowns, sustains our small neighborhood commercial areas and has become a viable component of the urban and suburban village concept. Even with the challenges inherent in mixing residential and commercial, the density impacts on our established neighborhoods, and the continued skepticisms of lenders, this is a wonderful building type that enhances the human experience because:

- It promotes convenient urban opportunities for residents to work shop and play within a small community.
- This life style takes advantage of public amenities such as parks, green and public transport
- In addition, it provides something that has been lacking for some time; a more secure 24- hourcharacter of our urban areas
- Most essentially, a good mixed-use design fosters a more vibrant and livable urban environmentand nothing has greater impact on improving life in the city.

Recommendations

Most cities in developing countries are facing serious urban development issues such as congestion (vehicular and traffic), pollutions, infrastructural inadequacies, environmental degradation, etc. From the research conducted, it can be deduced that Awka's urban problems is not due to overpopulation but inadequate and improper planning. This conclusion is the same of most cities in developing countries. The city is allowed to grow haphazardly with little or no planning direction and restrictions. This unplanned and uncontrolled growth and sprawl is the root cause of most of the urban problems facing these cities. So therefore, Local authorities such as ACTDA, Town and regional planners and the statistical bodies should engage in a continuous study and research about the dynamics of the city. i.e., its demography, density, urbanization rate and trends. Data collected from these studies should be used to create a database which will aid in making urban policies. Also, data gotten from organizations like ACTDA, ASUDEB will be used to make urban proposals and this will be made available to the private sector. This will ensure the plannedand controlled growth of the city, thereby preventing the ongoing haphazard growth. Provision of parks and green areas that will encourage socio-economic activities, transportation mediums such as bus terminals, train stations to facilitate in transit of people, goods and services.

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