



Sustainable Land Use Development in Lagos State: The Compact City Option

Okesoto, J.O.¹, Oladiboye, O.O², Olawale, S.B³, Alabi, J.O⁴

¹Urban and Regional Planning Department Yaba College of Technology, Lagos Nigeria.

²Surveying and Geo- Informatics Department Yaba College of Technology, Lagos Nigeria.

³Building Technology Department Yaba College of Technology, Lagos Nigeria.

⁴Department of Estate Management and Valuation, Yaba College of Technology.

ABSTRACT

The paper considers the possibilities of sustaining the use of land in Lagos state using the compact model option with special reference to some selected parts of Mushin Local Government Area of the state. The study combines both qualitative and quantitative research methods. Data was drawn directly from the field using building survey sheet and structured questionnaire. Sample of 125 buildings were taken in a cluster manner across 5 electoral wards from the total of 10 electoral regions in the area. Demography data was collected from a total of 125 households. Expert opinions on compact city model were also gathered using the Focus Group Discussion method. Data obtained from the two sources was descriptively and contextually analyzed. Results obtained were presented graphically. The study finds out that there is generally gross underutilization of land in the study area and in a non- sustainable manner. To address this land use challenge, the state needs to start considering the compact city option. Recommendation made largely revolves around the formulation of appropriate legislative, legal and physical planning frame work capable of enshrining compact city development in the area.

INTRODUCTION

The recent global pandemic called Covid-19, has thrown up the challenges of use of space, utilization and management of space. Works, commercial, educational, religious and other economic services are now offered from home. Activities in the last few months have become spatially restricted. Before this period, the developed clime of the world have deemphasized premium placed on space size and uses by the 19th and 20th centuries physical planners and the other professionals in the built environment. The argument centers on the economic and structural implications. To the protagonists of optimum utilization of space resource, it is quite expensive to build expansive spaces in term of the provision of social infrastructure and facilities. This position according DeRoo(2000) and Bramley& Power (2009), necessitated the emergence of compact city model.

The prediction of UN- Habitat(2014), that the greater proportion of the global population will live in and work in the cities also accentuated the call for optimum utilization of space in a manner that is sustainable.

Lagos, undoubtedly is the smallest geographical state in Nigeria occupying 0.4% of the entire geographical space

of Nigeria. Ironically the state accommodates the largest population in the country with an estimated population of over 24 million representing 10% of the nation's population. The inference here is that the state is most likely to suffer high incidence of space competition by the teeming population and their activities which mandatorily takes place within the existing space. The magnitude of urbanization scale in the state according to Aluko(2011), creates adverse effects on its biodiversity and ecosystem resulting from enormous fossil consumption for transportation reason and increasing cost of providing social services as a result of the fact that the city dwellers seek for space within the suburbs of the city. With a population growth rate of 3.4% per annum, the state is at the verge of population explosion.

The continuous relevance of the state as the hub of economic activities of the nation suggests that the state will continue to attract national and regional migrants. It is therefore suggested that the state will need more space for its present and future populations for the purpose of living, working and recreation. It therefore becomes imperative that the city must evolve a pragmatic approach capable of accommodating the envisaged population movements and its attendant activities on space in an effective and optimum manner. It is for this reason that this study is embarked on.



Conceptual Issues

Compact city model is an urban design concept that promotes relatively high residential density with mixed land uses. The model according to Dampsey & Jenks (2010), originated with Le-Corbusier's idea of high density living of the radiant city. A utopian idea that was first introduced in 1973 as a concept by Dantizing and Saaty (1973). The model was re-introduced in 1994 by Haughton and Hyter as Concentrated Center City Model (CCCM). The model has its greatest advocates in Europe where it is adopted as planning instrument through zoning and restrictions. The model allows cities to grow around centers of social, commercial and transportation activities. Healey (2002), describes the model as a polycentric pattern of city development. It deemphasizes a single function land use development and the dominance of motorized vehicle. Burgess (2000) and Haiyan (2008), see the concept as the most preferred response to the challenges of planning and development. The model connotes different meaning to different authors, for example, Rajashree et al (2012), describes it as a state of compactness, density, diversity, mixed land use, sustainable transportation and creation of green space while, Greenfield (2013) sees it as high urban density development that has the ability to protect open space, revitalization of downtowns and mixed use development.

Burton, 2002 suggests that compact city model as an instrument for building a relatively high density and mixed use city that is built on an efficient public transport system that encourages walking and cycling. Jenks (2000); Burton and Williams (1996), see compact city as non-sprawl city.

Compact model according to Burgess (2000) is of three forms mainly: densification, intensification and containment. The concept is generally characterized by the following features:

- (i) High density development
- (ii) Community based society
- (iii) Proximity
- (iv) Mixed use development
- (v) Service provision
- (vi) Central area revitalization
- (vii) Rich in urban landscape
- (viii) Energy efficiency.

Densification according to Dantizing and Saaty (1973), opine that densification is the fulcrum of compact city development. The authors identified three elements of densification to include; urban form (morphology), urban space and social elements as illustrated in table 1.0

Table 1. Elements of densification

Urban form	Space	Social functions
<ul style="list-style-type: none"> • High dense settlement • Less dependence on automobile • Clear boundary from the surrounding area 	<ul style="list-style-type: none"> • Mixed use • Diversity of life • Clear identity 	<ul style="list-style-type: none"> • Social fairness • Self sufficiency of daily life • Independence of government

Source: Adapted from Bibri et al. (2020).

Some of the benefits of compact city development include its ability to facilitate sustainable transportation because it encourages lesser travel distance and pedestrian traffic. It also has the ability to contribute to the environmental, economic and social goals of sustainable development as shown in table 1.1 below:

Table 1.1. Benefits of Compact city model capable of achieving the goal of sustainable settlement

<p>Environmental sustainability</p> <ul style="list-style-type: none"> • Reduction in capita rate of energy use • Increased energy efficiency and less pollution due to the proximity of workplaces to residences, services, facilities and public spaces • Decreased travel needs and economic cost shortening of travel time and costs • Minimization of transportation of energy, materials, waters and other products due to compactness of urban space • Optimization of the operational efficiency of transportation systems • Reduction in the consumption of building and infrastructure • Reducing car dependency and indirectly CO₂ emissions due to sustainable mobility and short travel distance • Saving and conservation of energy by containing heat and power provision made possible by population densities • Reduction of the pressure on ecosystem and biodiversity • Limiting the loss of green and natural areas as a result of the optimization of the use of land • Protection of the peri-urban lands due to deliberate prevent of development of such lands

Economic sustainability

- Providing support for local services and businesses due to increased population densities and concentration
- Revitalization of the city core areas through the promotion of increased density, mixed land use and public transportation
- Improves the operation of commercial properties and housing markets
- Enhances the development of public transportation infrastructure
- Promotes proximity between employees and their employment centers
- Promotes greater diversity among employers and diversity of job opportunities
- Increases the capability between job seekers and skills, thus boosting productivity
- Promotes diversity for choice among workplaces, service facilities and social contacts
- Enhances redistribution of incomes
- Guarantees 24 hours service , businesses and productivity

Social sustainability

- Provides better quality of life through social interaction, community spirit, cultural vitality and accessibility to, services, facilities and public spaces
- Crime reduction, feeling of security and safety through the promotion of round the clock economic and social activities.
- Improving social equity through better and equal access to , services, facilities and mixed housing
- Enhances social cohesion
- Supports human psychological and physical wellbeing through ease of access to open space and walkability of the neighborhoods
- Enhances livability through entertainment, cultural and recreational possibilities
- Eliminates spatial segregation by creating physical inter linkages within the neighborhoods and the provision of mixed housing

Source: Adapted from Bibri et al. (2020).

The Paradox of Compact City Development

Even among the advocate there is a general consensus that despite the positive side of compact approach to city development, there is also its negative side. For example, DeRoo(2000), believes that the model produces high level of noise pollution, resulting from close proximity between dwellings, transport lines, business activities, services and facilities. Mechum (2005),also argues that the concept is capable of increasing land and dwelling prices. According to the author, it can also cause severe congestion in transport and create social exclusion. Brandy and Power (2009) opine, that the model can negatively affect neighborhood satisfaction, creates less sense of community attachment and reduction in the quality of public utilities. Dempsey etal(2012) and Burton(2000) all opine that it can create an increasing level of societal crime while Heinonen and Junnila(2011) argue that the model is capable of creating larger income gaps.

The Study Area

The study area is Mushin situated about 10kms away from the Central Business District of central Lagos. The area is predominantly a residential area, characterized by poor quality housing with an estimated population of 1,312,517. Mushin is selected for the following reasons:

- (i) The area is characterized with mixed land use activities, the predominant use being residential
- (ii) It has a high level of proximity to the Central Business district of central Lagos.

- (iii) It is historically a core or downtown settlement
- (iv) The entire location is totally built up, this in turn has created scarcity of land space and increased land value
- (v) It is a brown field i.e. an area capable of being reused because of the poor utilization of the developed land.

Mushin is one of the major settlement that constitutes Mushin Local Government Area. The study area comprises of ten electoral wards namely:Itire, Idi-Araba, Idi-Oro, Odi-Olowo, Papa-Ajao, Olateju,Ojuwoye, Challenge, Baba Olosa and Ilasamaja.

Methodology

The study employed survey method mostly physical survey using physical survey sheet where inventory on existing land use characteristics and density were determined. Buildings were selected in clusters from randomly selected settlement from the identified ten electoral wards by means of ballot box method. Uses, heights and number of dwelling units were determined. In all of these buildings, the socioeconomic and demographic attributes of the users were obtained with the aid of questionnaires. Data solicited here include household size, income level and household structure. The study adopted non-probability sampling method in areas of which data was collected putting into consideration the following attributes:

- (i) The ability of the selected area to be capable of being reused as a result of state of dilapidation and inadequate use of land resource



- (ii) Low quality area in terms of housing activities and infrastructural development
- (iii) Ease of accessibility through efficient transport nodes to the Central Business District
- (iv) Areas of high degree of land use mix

In view of these parameters the following areas were selected for investigation: Mushin Ojuwoye, Baba Olosa, Idi-Oro and Idi-Araba. In each of these locations, density, building conditions and uses were determined. Other variables investigated include land tenure, land value and pricing and land fragmentation.

Results obtained from the field were descriptively analyzed and presented for the purpose of inference making that informed the study recommendation. Focus group discussion as a method of obtaining expert opinion on the subject compact city model and its application to the study area was also adopted. A total of seven professionals in the field of built environment were gathered and their opinions were harvested, contextually analyzed and presented in a thematic form.

RESULTS

A total of 125 buildings had a comprehensive survey carried out on them. The buildings were evenly distributed among the selected study area.

Building Density

Figure 2.1 below shows that 80% of the buildings are on low height of between 0-4 floors while few number of them are on higher heights. This suggest a high degree of land underutilization which is the general land density pattern in the entire area. The study intends to suggest a policy shift for vertical land development as against the existing horizontal land development in the study area.

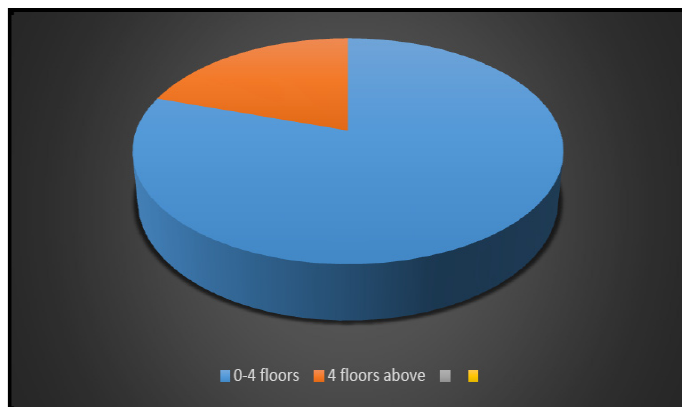


Figure 2.1: Height of buildings in the study area

Source: Field survey August 2022

Building Conditions

The study measures the existing condition of the buildings assessing elements like material of construction, finishing, conditions of roof, walls and floors. Availability and adequacy of parking lots, users satisfaction opinions and

age of buildings. The analysis of the result obtained shows that 75% of these buildings are of poor conditions while over 30% of this proportion are in dilapidated condition as shown in table 3.2 below. This condition expresses the general conditions of buildings in Mushin Local Government Area of the state. This confirms the classification of the area as brown fields and capable of being redeveloped to soothe the compact city model requirement.

Table 2.1. Conditions of buildings in the study area

Condition of buildings	Frequency	Percentage
Good	10	8
Fair	21	16.8
Poor	60	48
Poor and dilapidated	34	27.2
Total	125	100

Source: Field survey August, 2022

Building Use

Figure 2.2 below shows that 68% of the buildings in the study area are generally of mixed use, combining multiple uses like residential, public, commercial and institutional. Residential use however takes a greater proportion of the mixed uses and overall building use. This is followed with commercial use, the table also indicated that green space and recreational uses are virtually lacking in the study Area. This represents the general building and land use pattern across the local government area. This characteristics is one of the basic prerequisite for the operationalization of compact city model which the study intends to explore.

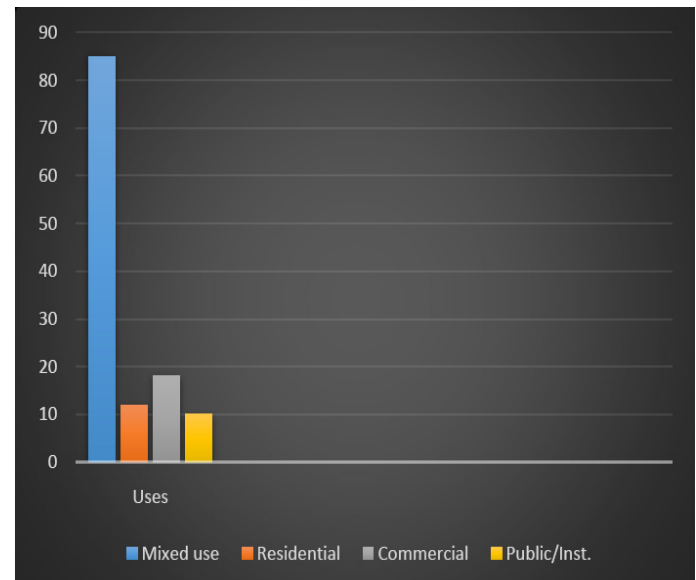


Figure 2.2. Building use in the study area

Source: Field survey, August 2022

Land/ Building Tenure

The study area for the survey is characterized by multiple tenants/ building/land owners resulting from land and building fragmentation. Figure 2.2 shows that 65% of the buildings are collectively and severally owned.

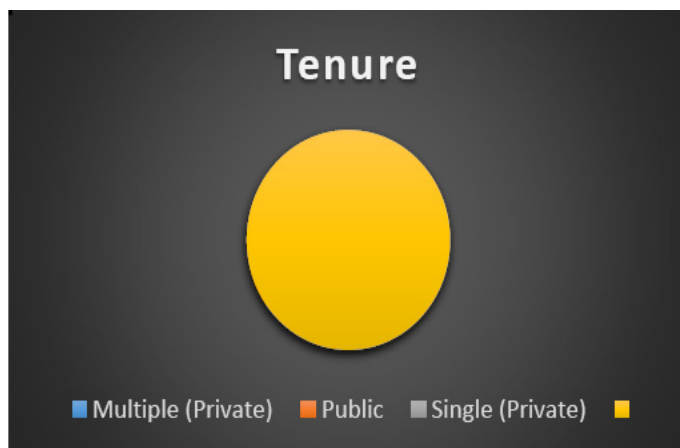


Figure 2.2: Building Tenure in the study area

Source: Field survey, August 2022

Demographic Characteristics

The study location are generally densely populated with an average household size of seven persons, an average that is slightly above the average household size of the state which the National Population Commission puts at 6. The survey also reveal that the building users are generally of mixed income, majority of whom are on monthly income of #156, 852 per month. This average is significantly above the national average of #97,750.00A (National Bureau of Statistics, 2018).

Benefits and Challenges of Compact City Model Implementation in the Study Area

The seven members of the focus group discussion drawn from both public and private sectors all of whom are professionals within the built environment express their opinions on the subject matter of the study. Their opinions are summarized under the following themes:

- (a) **Constraints of implementing compact city model in the study area:**
- (i) The complexity and the multiple nature of land tenure system in the study area
 - (ii) The problem of land fragmentation
 - (iii) Absence of political will on the side of the government
 - (iv) The constraints of strong cultural attachment to family lands and buildings
- (b) **The members of the focus group discussion are of the general view of the following benefits:**
- (i) Promotion of investment in the real estate sector
 - (ii) Stimulation of economic opportunities
 - (iii) It provides option for optimum use of land
 - (iv) Enhances sustainable development
 - (v) Provides opportunities for people to work closer to where they live

CONCLUSION AND RECOMMENDATIONS

The study lays credence for the application of compact city model in a selected part of Lagos as the only panacea to make the state ready for the accommodation of the expected population of the state in the years to come and its attendant activities. This will not only position the city for its mega city status but make its land resource sustainable. To operationalize the model in the study area, the paper recommends for the selection and classification of the area as a brown area and proclaim the area as a planning area. Shortly after doing this, the state government should put in place, appropriate legislative and legal framework. Such framework should allow for land pooling, compulsory sales of land by the original land owners. The framework should be able to attract both local and foreign investors in intensive real estate and infrastructural development. The framework of application should be flexible and capable of providing for the present occupants and all class of income earners. Appropriate design principle should evolve. Such design principle should allow for compactness, relative high density, incorporating high level of technology. The design should incorporate, safe energy use, energy conservation, green structure and intensification of land use.

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