

**UNIVERSITY OF KWAZULU-NATAL**



**RECLAIMING SETBACKS AND OPEN SPACES FOR GREENING AND  
SUSTAINABLE LANDSCAPE DEVELOPMENT IN STATE CAPITAL CITIES:  
A CASE STUDY OF ADO-EKITI, NIGERIA**

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**Thesis submitted in fulfillment for the requirements the Degree of Doctor of Philosophy in  
Urban and Regional Planning in the School of Built Environment and Development  
Studies, University of KwaZulu-Natal**

**October 2017**

## ABSTRACT

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The rapid rate of urbanization in developing countries generates various socio-economic and environmental challenges. In Nigerian urban centres, high rate of rural-urban drift aggravates population growth rate, and increasing space demand for land use and human activities put pressure on land resources. In Ado-Ekiti, Ekiti State capital, the study area, land is continuously fragmented, resulting to densely populated areas and inequitable use. This syndrome culminates in vegetal depletion, urban sprawl, environmental degradation and increasing poverty levels. Uncontrolled development, excessive hard landscaping and informal sector activities along transportation corridors, water bodies, utility lines, and the inner core areas deprive the city of adequate greenery. The research examines the city's spatial structure, socio-economic attributes of residents, setbacks and open space characteristics, pattern of encroachment, and the efficacy of development control legislations. The challenges posed by the inadequacy of greenery and excessive hard landscaping, government's effort in reclaiming lost spaces to create inclusive green areas for sustainable urban landscape were evaluated. The research methodology utilise relevant data from secondary sources to build literature and compliment socio-economic baseline data collected from primary sources by multi-stage technique across three morphological zones. Research findings expose devegetation, hardening, gross inadequacy and abuse of setbacks and air spaces, lack of organised open spaces and green areas. There is a disconnection between relatively high literacy level and contravention of development regulation laws. Informal development, mostly commercial, is rampant and driven by high poverty level and people's instinct to sustain their socio-economic needs. Ignorance of good quality environment, desire for economic benefits, and ineffective governmental control are other factors responsible for the disruption of public spaces. The study argued that the people engage in space contestation to survive, while the uncontrolled informal sector is neglected by government. Recommendations are hinged on the Strategic Urban Greening Intervention Model developed to encapsulate key systematic elements in the negative aspects, and how intervention strategies, tools and methods are deployed for positive transformation. Based on the Model, the proposed Ado-Ekiti Urban Greening Master Plan was prepared as policy directives and programmes for stakeholders' synergy to establish, monitor and maintain inclusive green areas in the city. Informal sector integration to strengthen livelihood strategy, inclusiveness and green economy is germane to

successful greening programme, failing which the people will return to the streets and continue to aggravate carbon footprints. Socio-economically, the research is guaranteed to diversify local economy, boost investment generation, and enhance living standards. Physical impacts include improved environmental quality, global warming abatement and climate change mitigation in the city. The Model developed out of this research and contribution promotes landscape sustainability in Ado-Ekiti and can be replicated in Africa cities.

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**PGD (URP); M.Env.Mgt.; M.Tech. (URP)**

**October 2017**

**DECLARATION**

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This thesis is my own thought and creative idea, independently carried out by me. It is being submitted for the Degree of Doctor of Philosophy in Urban and Regional Planning in the University of KwaZulu-Natal, Durban, South Africa.

I ..... declare that:

- (i) The research reported in this thesis, except where otherwise indicated, is my original work.
- (ii) This thesis has not been submitted for any degree or examination at any other university.
- (iii) This thesis does not contain other persons' data, pictures, graphs or other information, unless specifically acknowledged as being sourced from other persons.
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.....  
**Olufemi J. Ojo-Fajuru**  
**(Ph.D. Candidate; Student No: 211560777)**

Declaration made this .....day of ....., year.....

## DEDICATION

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To my parents of blessed memory  
Pa John Ojo and Marian Aina Fajuru  
Whom, by my birth  
Made me a part,  
And impact on  
This ever-changing World.

## ACKNOWLEDGEMENT

---

The people to whom gratitude is due for invaluable roles played towards the completion of this research and the writing of the thesis are legion. I cannot list them all for lack of space and the fear of omitting many. However, I single out with thanks, Emeritus Professor Ambrose A. Adebayo, my Supervisor and ‘doctoral father’, whose tireless, painstaking reading and constructive criticisms of my proposals as they unfolded into the draft thesis, despite his busy schedules, were unquantifiable. His passionate effort, vast knowledge, quick wittedness, versatility, academic tutelage, visionary ideas, unwavering patience, undaunted, unalloyed, all round support, and pragmatism are unprecedented and remain unforgettable. I am highly indebted to other erudite academicians and professionals for their passion and unflinching interest in the successful completion of the research project. Thanks to Ms. Deanne Collins, for her meticulous and wonderful edition of the draft thesis.

I sincerely appreciate government officials, community heads, field supervisors, research assistants, colleagues and friends for their useful information, linkage, and technical assistance. Grateful thanks are due to staff and students of the University’s Howard College Campus, particularly the School of Built Environment and Development Studies, and the Programme of Planning; as well as the entire staff of Ambro Afrique Consultants, Durban for their wonderful assistance. I cherish the memorable moments I shared with my fellow Ph.D students, whose regular criticisms kept me on my toes, and brought the best out of me. I thank my siblings and my in-laws for their love, moral and financial support. I extend Calvary greetings to the clergies and congregations of my Anglican churches in Ado-Ekiti, Akure, Lagos and Durban for their good wishes and fervent prayers.

Heartfelt appreciation to my God-given wife of inestimable value, Victoria Anikeola Abiola, for her love, trust, foresight, encouragement, confidence, endurance, contentedness, moral and financial support. She believed in my ability, and took great care of the home front, which I virtually abandoned while this Program lasted. I thank “Pappy” Ayomitide Oluwafemisoro Igbagbgbemi Peter for being a good boy despite my perpetual absence during his formative

years, as this Program ran concurrently with his secondary education. Only God can reward your collective supreme sacrifice towards the accomplishment of the Program.

To God are all glory, honour and adoration, for He is good, all the time, and all the time, He is good. His mercy endures forever and ever.

## TABLE OF CONTENT

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<b>ABSTRACT</b> .....	i
<b>DECLARATION</b> .....	iv
<b>DEDICATION</b> .....	v
<b>ACKNOWLEDGEMENT</b> .....	vi
<b>TABLE OF CONTENT</b> .....	viii
<b>LIST OF FIGURES</b> .....	xiv
<b>LIST OF TABLES</b> .....	xxiii
<b>LIST ACRONYMS AND ABBREVIATIONS</b> .....	xxvi
<b>CHAPTER ONE</b> .....	1
<b>INTRODUCTION AND BACKGROUND TO THE RESEARCH</b> .....	1
1.0 Introduction.....	1
1.1 Background to the study .....	4
1.2 Problem Statement .....	7
1.3 Main Question.....	8
1.3.1 Subsidiary questions .....	8
1.4 Aim and objectives .....	9
1.4.1 Aim .....	9
1.4.2 Objectives .....	9
1.5 Formulation of hypotheses.....	9
1.6 Possible outcomes of the research .....	10
1.7 Justification for the study.....	10
1.8 Scope of the study.....	12
<b>CHAPTER TWO</b> .....	17
<b>RESEARCH METHODOLOGY</b> .....	17

2.0 Introduction.....	17
2.1 The research design.....	17
2.2 Research population.....	17
2.3 Data types and sources.....	19
2.3.1 Primary data specification and sources.....	19
2.3.2 Secondary Sources.....	30
2.4 Key approach to challenges of community access, information gathering and data collection.....	31
<b>CHAPTER THREE .....</b>	<b>34</b>
<b>THEORETICAL AND CONCEPTUAL FRAMEWORK .....</b>	<b>34</b>
3.0 Introduction.....	34
3.1 Theoretical background .....	34
3.2 Conceptual framework.....	38
3.3 Philosophical ideologies .....	56
<b>CHAPTER FOUR.....</b>	<b>61</b>
<b>HISTORICAL EVOLUTION, TOWN AND GARDEN, URBANIZATION AND CITY DEVELOPMENT .....</b>	<b>61</b>
<b>4.0 Introduction.....</b>	<b>61</b>
<b>4.1 Historical evolution of cities from the medieval period to the current era.....</b>	<b>61</b>
<b>4.1.1 Historical cities .....</b>	<b>63</b>
<b>4.1.2 Structure and landscape of traditional Yoruba cities in the southwest geopolitical zone of Nigeria.....</b>	<b>64</b>
<b>4.1.3 Medieval towns.....</b>	<b>68</b>
<b>4.1.4 Renaissance gardens .....</b>	<b>69</b>
<b>4.1.5 Baroque gardens .....</b>	<b>74</b>
<b>4.1.6 Oriental gardens and space.....</b>	<b>76</b>
<b>4.2 Urbanization, city development and urban land issues.....</b>	<b>81</b>

<b>4.2.1 Urbanization and city development</b> .....	81
Source: United Nations, 2007 .....	82
<b>4.2.2 City development and urban land issues</b> .....	85
<b>4.2.3 Planned industrial towns</b> .....	86
<b>4.2.4 The park movement</b> .....	88
<b>4.2.5 The garden city response</b> .....	91
<b>4.2.6 The city beautiful movement</b> .....	100
<b>4.3 Sustainable city or eco city and practical achievements</b> .....	101
<b>4.4 Cities in Nigeria focusing on Ado-Ekiti, Ekiti State capital and the case study area in the South-west Geo-political Zone</b> .....	103
<b>CHAPTER FIVE</b> .....	107
<b>THE ENVIRONMENT, URBANISM AND CHALLENGES TO SUSTAINABLE GREEN CITY LANDSCAPE</b> .....	107
<b>5.0 Introduction</b> .....	107
<b>5.1 The effects of urbanism on the state of city environment</b> .....	107
<b>5.2 Sources and effects of global warming and climate change on cities, urban liveability and environmental sustainability</b> .....	109
<b>5.3 Transportation in relation to space, landscape and the city environment</b> .....	113
<b>5.4 Waste management and the city environment</b> .....	117
<b>5.5 Public participation in environmental policies of the green city</b> .....	121
<b>CHAPTER SIX</b> .....	124
<b>SETBACKS AND OPEN SPACES: ATTRIBUTES AND LEGAL FRAMEWORK</b> .....	124
<b>6.0 Introduction</b> .....	124
<b>6.1 Setbacks and Open Spaces</b> .....	124
<b>6.2 Typologies of setbacks and open spaces</b> .....	130
<b>6.3 Socio-economic and environmental attributes of setbacks and open spaces</b> .....	134

6.4 Spatial development framework and construction aspects of setbacks and open spaces.....	140
6.5 Utilisation, management, and maintenance of setbacks and open spaces.....	146
6.7 Legal framework on the establishment, development control and maintenance of setbacks and open spaces in urban areas.....	155
6.7.1 Master planning policies and implementation of strategies for setbacks and open spaces .....	169
6.7.2 Evidence on contraventions and encroachment to justify reclamation of illegally developed setbacks and open spaces in cities.....	173
6.8 Relevance of public awareness, people’s priorities, functional usage and socio-cultural integration on issues relating to greening setbacks and open spaces for environmental sustainability in the city landscape .....	179
<b>CHAPTER SEVEN.....</b>	<b>185</b>
<b>THE URBAN LANDSCAPE, LANDSCAPING, AND THE GREEN CITY .....</b>	<b>185</b>
<b>7.0 Introduction.....</b>	<b>185</b>
<b>7.1 An understanding of the landscape, landscaping and landscape planning .....</b>	<b>185</b>
<b>7.2 Advantages, intermixture, and typical examples of landscaping in the cityscape .....</b>	<b>194</b>
<b>7.3 The preference for green landscaping over others and its efficacy in improving urban liveability and ensuring environmental sustainability.....</b>	<b>195</b>
<b>7.4 The green city concept and index .....</b>	<b>197</b>
<b>7.4.1 The Green City Indices.....</b>	<b>199</b>
<b>CHAPTER EIGHT.....</b>	<b>228</b>
<b>THE PROFILE OF CASE STUDY AREA .....</b>	<b>228</b>
<b>8.0 Introduction.....</b>	<b>228</b>
<b>8.1 Case Study of Ado-Ekiti .....</b>	<b>228</b>
<b>8.2 Geographical location.....</b>	<b>228</b>
<b>8.3 Climate and Vegetation .....</b>	<b>232</b>
<b>8.4 Historical background .....</b>	<b>232</b>

8.5 Evolutionary trends .....	233
8.6 Urbanization, development trends and city expansion.....	233
8.8 Land use pattern .....	237
8.9 Factors that influence development.....	237
CHAPTER NINE.....	242
RESEARCH ANALYSIS AND DATA PRESENTATION ON CASE STUDIES .....	242
9.0 Introduction.....	242
9.1 Sorting and collation of data from the field survey based on specific case studies in the study area.....	242
9.2 Processing and analysis of research results .....	242
9.3 Data analysis, presentation, interpretation and discussion of results .....	242
9.3.1 The spatial structure of the study area .....	244
9.3.2 The socio-economic characteristics of residents in the study area .....	257
9.3.3 Setbacks and open space characteristics, and pattern of encroachment in the study area.....	265
9.3.4 Effect of statutory provisions and extant rules on development control of setbacks, open spaces and green landscaping .....	353
9.3.5 Governmental efforts to reclaim and utilize setbacks and open spaces in the city .....	357
9.3.6 People’s priorities and participation in the greening program.....	362
CHAPTER TEN.....	366
CONCLUSION AND RECOMMENDATIONS.....	366
10.0 Introduction.....	366
10.1 Summary of findings.....	366
10.2 Models, proposals and alternative plans .....	374
10.3 Policy statements, recommendations and policy directives for the plan implementation.....	387
10.4 Conclusion .....	404

REFERENCES .....	408
BIBLIOGRAPHY .....	439
APPENDICES .....	442
Appendix I .....	442
Appendix II .....	445
Appendix III.....	450
Appendix IV.....	451
Appendix V.....	452
Informed Consent Letter .....	452
Appendix VI.....	453
Gatekeepers’ permissions .....	453
A. Gatekeeper’s permissions from Ado-Ekiti Local Government.....	453
B. Gatekeeper’s permission from Ekiti State Ministry of Lands Housing and Urban Development .....	454
C. Gatekeeper’s permission from Davcrown International Services Limited .....	455

## LIST OF FIGURES

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Figure 2. 1: The sequence of the research methodology for the study.....	18
Figure 2. 2: Delimitation of wards along existing residential districts in the Ado-Ekiti. ....	22
Figure 2. 3: Morphology of places as basis for neighbourhood selection into the sampling frame.....	21
Figure 3. 1: Net migration rates by country. Social, economic, and environmental conditions (such as unemployment, drought, or conflict) can drive large numbers of people to migrate across national borders. Positive migration rates are indicated in blue; negative migration rates in orange; stable in green; and no data in gray.....	39
Figure 3. 2: Trend of rural and urban population revealing that in recent times, the world's population has become more urban than rural. ....	40
Figure 4. 1: The Palace of Ewi and the King's market edged in red and blue respectively are centrally located at the converging point of movement paths.....	66
Figure 4. 2: The layout of Ewi's Palace in 1923 showing the fullness of the background forest. ....	66
Figure 4. 3: The Medici Villa at Fiesole. ....	71
Figure 4. 4: The imposing view of the Palazzo Piccolomini Gardens from the loggia.....	72
Figure 4. 5: Villa Madama (1516): an aerial view of the villa and its grounds recently.....	74
Figure 4. 6: The Ryoanji Temple. ....	78
Figure 4. 7: A little piece of Asia (Annotated by the Researcher). ....	78
Figure 4. 8: Atherton Japanese Garden. ....	79
Figure 4. 9: The World's population will be predominately urban by the year 2005-2010. ....	82
Figure 4. 10: Panoramic view of Central Park in Manhattan, New York, naturalising the cityscape. ....	89
Figure 4. 11: Central Park, New York, where visitors can 'escape' from the city and even sunbath.....	90
Figure 4. 12: Ebenezer Howard's schematic diagram of central and garden cities. ....	92
Figure 4. 13: Ebenezer Howard's diagram of the three magnets. ....	93
Figure 4. 14: Foundation Stone of Pinelands.....	97
Figure 4. 15: Port Harcourt literarily known as the 'Garden City' for its green landscape, rather than the influence of Howard's Garden City movement on its urban morphology. ....	98
Figure 4. 16: Plan showing greenery in the Central Area of Phase I of the City. ....	99
Figure 4. 17: Ado-Ekiti in the local, state and national settings. ....	105
Figure 6. 1: Yards and setbacks. ....	130

Figure 6. 2: Population explosion, survival strategies and ineffective physical planning inducing chaos, disorder, and informal activities that encroach on setbacks and open spaces around buildings and roadway along Nnamdi Azikiwe Street, Lagos Island. ....	149
Figure 7. 1: The Centennial Park and Reservoir, Howard County, in the State of Maryland, U.S.A., a highly diversified landscape of local vegetation communities, wildlife habitats and topography. ....	185
Figure 7. 2: Court Gardener's House, Chartottenhof, a picturesque building featuring a tower, the low-sloping, gabled masses, and many arched openings and pergolas area in an exotic landscape. ....	186
Figure 7. 3: The mountainous Layfayette Campground landscape, a tourist destination for rock climbing. ....	187
Figure 7. 4: A bird's eye view of the University College, Dublin campus showcasing the use of soft landscaping elements on the earthscape. ....	193
Figure 7. 5: View along Rick Turner Road: Durban is richly endowed with panoramic greenspaces. ....	217
Figure 7. 6: Ikorodu Road, Lagos showcasing transformative green spaces and the green BRT lanes as dividends of democracy. ....	220
Figure 7. 7: The lush greenery of Bowden Urban Village, one of the largest urban renewal projects in Adelaide, Australia, offers a unique example of green urban infill model on revitalised city landscape. ....	227
Figure 8.1: Satellite imagery of Nigeria showing the location of Ado-Ekiti at the arrowed spot. ....	229
Figure 8.2: Ekiti State in the national setting. ....	229
Figure 8.3: Ado-Ekiti in the national setting. ....	230
Figure 8.4: The distance relationship of Ado-Ekiti with other cities and towns in Nigeria. ....	230
Figure 8.5: Ado-Ekiti Local Government Area in the state setting. ....	231
Figure 8.6: Geomorphological setting of Ado-Ekiti Region the Upper Ogbese River Basin. ....	231
Figure 8.7: Comparative growth of Ado-Ekiti Township spanning five decades from 1956 to 2006, and engulfing outlying fertile agricultural land, forests, hamlets and villages. ....	234
Figure 8.8: Satellite imageries showing land use coverage, sprawling and depletion of vegetation in Ado-Ekiti between 1995 and 2015. ....	235
Figure 8.9: Satellite imagery exposing the cancerous spreading of Ado-Ekiti into the surrounding region. ....	236

Figure 8.10: Comparative land use maps showing land use modification between 1995 and 2015.....	238
Figure 8.11: Satellite imagery of Ado–Ekiti revealing scanty green spaces in the built-up residential districts and amorphous expansion in all directions into the suburbs.....	239
Figure 8.12: Aerial view exhibiting largely amorphous development heading formlessly to the suburbs with scanty and inadequate open spaces and scanty greenery in spatial structure of the city. .....	239
Figure 9. 1: Street location of photographs showing the existing situation of places in residential districts selected for case study in the three morphological zones of the city. ....	243
Figure 9. 2: Aerial view of Ado-Ekiti showing development sprawl into the surrounding regions. ....	244
Figure 9. 3: The spatial structure of Ado-Ekiti, dominated by residential land use, shows evidence of planlessness, typical of the core and new development areas, with the exception of the planned residential estates as shown in the morphology of places in the city. ....	245
Figure 9. 4: The morphology of places in the core/old areas (COAs) in the city. ....	246
Figure 9. 5: The morphology of places in the new development areas (NDAs) in the city.....	247
Figure 9. 6: The morphology of places in the planned residential areas (PREs) in the city. ....	248
Figure 9. 7: Residential land use is the dominant sector in the spatial structure in the morphological zones of the city. ....	249
Figure 9. 8: Aerial view of Igbehin district, a predominantly residential area the unplanned core/old area of the capital city.....	250
Figure 9. 9: 7th Avenue in State Residential Estate, Oke-Ila in the planned residential areas of Ado-Ekiti. .....	250
Figure 9. 10: Commercial land use is more prominent in the new development areas of the city. ....	252
Figure 9. 11: A residential building recently renovated and converted to a church at Oke-Ila Street. ....	254
Figure 9. 12: Recreational land use is scanty indicating quantitative deficiency in the spatial structure of morphological zones of the city. ....	255
Figure 9. 13: The overall land use in Ado-Ekiti revealing bare landscape, with few or no greenery in the three morphological zones of the city. ....	258
Figure 9. 14: The male gender outnumbered the females in all the selected districts in all morphological zones of the city. ....	259
Figure 9. 15: Age of respondents in selected districts across the three morphological zones of the city.	260
Figure 9. 16: The domination of the ‘married’ in the three morphological zones of the city. ....	261
Figure 9. 17: Informal trading activities and pollution within setbacks along Housing Estate Okella Road	

in the city. ....	263
Figure 9. 18: Informal commercial use thrives along setbacks to roadway at Ijigbo Street in the city. ...	266
Figure 9. 19: At Ajilosun Street in the new development area of the city, building frontage, setbacks and even the roadway is commonly use for commercial purposes.....	266
Figure 9. 20: Commercialisation of building frontage, setbacks as well as the roadway at Okeyimi Street in the new development area is common sight throughout the capital city. ....	267
Figure 9. 21: Commercialisation of building frontage, setbacks as well as the roadway at Orereowu Street in the new development area is common sight throughout the capital city. ....	267
Figure 9. 22: Newly renovated First Baptist Church, Ogbon Oba in the core area where informal commercial activities thrive along the fence, setbacks, sidewalks and the road surface. ....	268
Figure 9. 23: The spatial extent of Ado-Ekiti in 1956, signaling the imminence of uncontrolled urban expansion in all directions into outlying regions. ....	270
Figure 9. 24: The three categories of road on which buildings are located in Ado-Ekiti. ....	273
Figure 9. 25: Dualised roadways at Igbehin Street is a primary distributor offering prime location for buildings and businesses in the core/old areas of Ado-Ekiti.....	274
Figure 9. 26: Houses abutting dual carriageway at Ajilosun Street, a typical primary distributor in the new development areas of Ado-Ekiti. ....	274
Figure 9. 27: Mathew Street, a secondary collector along which buildings are located in the core/old areas of Ado-Ekiti. ....	275
Figure 9. 28: Satelite imagery showing untarred tertiary access roads providing ingress and egress for buildings in the State Residential Estate, Oke-Ila in the planned residential areas of Ado-Ekiti.....	275
Figure 9. 29: Rights-of way (ROW) along classes of Federal and State roads, within which setbacks are are accommodated and expected to be maintained as green space. ....	277
Figure 9. 30: Variation in the frequency of plot sizes is inversely proportional in two of the three morphological zones of Ado-Ekiti. ....	278
Figure 9. 31: Deficiency of spaces around buildings resulting to choky urban landscape is a manifestation of excessive plot usage in built-up core and new development areas of Ado-Ekiti.....	280
Figure 9. 32: Negation of space standards on plot coverage ratio culminates to open space shortage around dwellings and the massing of buildings, especially in the city’s core and new development zones.....	281
Figure 9. 33: Majority of houses especially in the core and new development zones of Ado-Ekiti were constructed without valid planning permits. ....	283

Figure 9. 34: Inadequate setbacks and air spaces, and substandard maximum plot coverage culminate to formless and chocky development typical of core and new development areas of Ado-Ekiti. .....	283
Figure 9. 35: Field assistants taking physical measurement of setbacks to houses at Inisa Street in the core/old areas of Ado-Ekiti. ....	284
Figure 9. 36: Houses built on roadway and drainage channel edges without front setbacks in Idolofin Street, typically in the core/old and new development areas of Ekiti State capital. ....	285
Figure 9. 37: House with ample setback in State Housing Estate, Oke-Ila, exemplifying the planned residential estates in the State capital. ....	287
Figure 9. 38: Building with adequate left side airspace along Ajilosun Street in the new development area of the city. ....	288
Figure 9. 39: House with less than 3 meters right air spaces are ubiquitous in the State capital. ....	289
Figure 9. 40: Buildings lack sufficient air spaces from adjoining ones, and adequate setbacks from roads and water edges, particularly in the core and new development areas of the city. ....	292
Figure 9. 41: Covered drainage channel along Ajilosun Street in the new development area of Ado-Ekiti. .....	294
Figure 9. 42: Continuation of covered drainage channel to the open type along Ajilosun Street, Ado-Ekiti. .....	294
Figure 9. 43: Houses built at zero meter on the edge of drainage channel, some (as seen in the foreground) with eroded foundation disintegrating at Inisa Street, in the core old morphological zone of Ado-Ekiti. ....	297
Figure 9. 44: Buildings located less than four meters from Ajilosun River channel in the new development area of Ado-Ekiti. The hanging debris indicates higher water level and flooding profile during rainfall. ....	297
Figure 9. 45: The wanton use of open drainage channels that are often close to buildings for solid, liquid and human wastes disposal as observed at Atikankan in the core/old area of the city constitutes source of water pollution, air pollution, environmental degradation and health hazard. ....	298
Figure 9. 46: The indiscriminate dumping of solid, liquid and human wastes into Ajilosun River channel in the new development area of the city has blocked fluvial movement, induced siltation that reduces channel capacity and causes flooding; while also constituting sources of water pollution and environmental degradation. ....	298
Figure 9. 47: Satellite image of Ado–Ekiti showing open green areas and their encroachment on	

government acquisition along Ireje River basin in 2005. ....	299
Figure 9. 48: Satellite image of Ado–Ekiti revealing the subtraction and illegal occupation of green areas by amorphously expanding residential districts with scanty open spaces along Ireje River basin in 2015. ....	299
Figure 9. 49: Rainy season flooding in the three morphological zones of Ado-Ekiti.....	300
Figure 9. 50: Most houses are located near low tension power line as seen in Mathew Street in the new development area, typifying similar trend in other morphological zones of Ado Ekiti.....	302
Figure 9. 51: Houses located very close to low tension power line with service cable dangling overhead at Iyere Street in the core area, as common occourence in other morphological zones of the city. ....	302
Figure 9. 52: Medium tension power line, often running on top of service poles parallel to low tension power line below it, as seen along Ijigbo-Ajilosun axis. ....	304
Figure 9. 53: Medium and low tension power lines on service poles along Ijigbo Street in the core area, replicated in other morphological zones of the capital city. ....	304
Figure 9. 54: Series of medium tension power lines the supply link transmitting power to step-down transformers and national grid from power generating station at Agric Olope area of the city. ....	306
Figure 9. 55: High tension power line, the highest order of transmission lines (in the background), are scarcely found in the city. ....	306
Figure 9. 56: Medium tension power line servicing transformer in Housing Estate, Oke-Ila in the city.	307
Figure 9. 57: Houses observing minimum setback to domestic power lines Housing Estate, Oke-Ila.....	307
Figure 9. 58: Development within setbacks and air spaces is mostly common in the NDAs than the COAs, and the least in the PREs of Ado-Ekiti. ....	309
Figure 9. 59: Development within setbacks: Shop recently constructed with metals on the setback to a one-storey building at Imayo Street in Idofin District in the core old area of Ado-Ekiti. ....	309
Figure 9. 60: Development within setbacks: Fence constructed on edge of drainage channel enclosing a setback, marked for contravention at Kajola Street in new development area of Ado-Ekiti. ....	311
Figure 9. 61: Development within setbacks: Makeshift shops built on setback space along Poly Road, Odo-Ado Street in new development area of Ado-Ekiti.....	311
Figure 9. 62: Development within setbacks: Fence converted to shop, usurping the setback to the edge of drainage channel while neighbours on both sides maintained their setbacks undeveloped in State Housing Estate in the planned residential areas of Ado-Ekiti. Similar setback development into a row of shops is observable at the frontage of the duplex in the	

background.....	312
Figure 9. 63: Commercial activities surpass other uses within setbacks and air spaces within residential districts in the three morphological zones of Ado-Ekiti. ....	312
Figure 9. 64: Extremity of commercial activities spilling from setbacks to annex the roadway at Imayo Street as it is often the case in all the three morphological zones of the state capital.....	313
Figure 9. 65: A myriad of other uses and activities such as cooking, sign posting and advertisement clog setbacks and air spaces within residential districts in the three morphological zones of Ado-Ekiti.....	313
Figure 9. 66: The frequency of illegal development within setbacks and air spaces is relatively high in all the morphological zones, but surprisingly highest in the planned residential areas of Ekiti State capital.....	315
Figure 9. 67: Building setbacks endowed with grass, shrubs and beautiful flowers along 7th and 9th Avenues, a common sight in the State Housing Estate, Oke-Ila in the planned residential zone of Ado-Ekiti.....	317
Figure 9. 68: Hard surfacing of setbacks as seen along Ajilosun Street aggravates urban heat island and discomfort in of Ado-Ekiti.....	318
Figure 9. 69: Institutional open spaces in the form of playgrounds and football pitches at private and public schools and colleges in various neighbourhood districts in Ado-Ekiti.....	323
Figure 9. 70: Muslim Praying Ground near Ado Grammar School Odo-Ado typifying religious open spaces in the various morphological zones in Ado-Ekiti.....	323
Figure 9. 71: The location of identified open spaces in the three morphological zones of Ado-Ekiti.....	329
Figure 9. 72: The Oluyemi Kayode Stadium Complex is equipped for a wide range of indoor/outdoor as well as active/passive recreation, and is located in the new development area of the city. ....	330
Figure 9. 73: The life size statute of Fajuyi the Great forms the focal point in Fajuyi Memorial Park Ado-Ekiti where exotic planting, grassing, paving, water and concrete seats offer perfect environment and opportunity for recreation activities.....	331
Figure 9. 74: The Fajuyi Memorial Park: threatened with encroachment from informal commercial ventures more than being used for recreational activities.....	331
Figure 9. 75: The Ekiti Golf Club is located along Federal Polytechnic Road. It is government owned but privately operated, and is fully equipped for indoor, outdoor, active and passive recreation activities.....	333
Figure 9. 76: Aerial view of the golf courses at the Golf Club extracted from satellite imagery.....	333
Figure 9. 77: The extensive but exclusive lush green golf course/pologround of the Golf Club at sunset.	

.....	333
Figure 9. 78: School playgrounds offer sports fields for youth to participate in outdoor, active and passive recreation activities. ....	335
Figure 9. 79: Commercialization of setbacks and open spaces along Dayo Fajuru Road Oke-Ila in the planned residential area of Ado-Ekiti. ....	337
Figure 9. 80: Railings for green area demarcation and protection were audaciously removed and used as grates on open drainage channels to access roadside shops at Ajilosun Street, Ado-Ekiti. ....	338
Figure 9. 81: Trading on setbacks extended topaved sidewalk in an ‘I don’t care’ attitude to the exclusion of pedestrians at Okeyinmi Street in the state capital. ....	338
Figure 9. 82: With illegal structures attached to houses on setback spaces; water (for sale) tanks across the drainage channel; cooking, frying and trading taking place on the road surface, it is business as usual backed by highhanded impunity at Kajola Street in the new development area. ....	338
Figure 9. 83: Complete blockage of setback space with articles of trade like plastic water tanks and electric poles is rampant along Dayo Fajuru Road Oke-Ilain the planned residential zone of Ado-Ekiti. ....	339
Figure 9. 84: Use of setbacks and open spaces as workspace for welding and metal fabrication and for the display of finished products at Oke Bola Street in the new development area of the capital city. ....	339
Figure 9. 85: Marked for demolition along Dallimore Street, Ado Ekiti since November 2013, this makeshift illegal structure is still standing and in use nearly three years after. ....	344
Figure 9. 86: Willful utilization of setbacks and air spaces around building for illegal substandard structures, which choke up the spaces between the buildings. The implication is that setbacks and outdoor spaces are grossly reduced below acceptable standards around buildings in Oke-Ila Street. ....	348
Figure 9. 87: Some buildings have the remaining spaces around them covered solely with soft landscaping, as are most commonly found in the planned estates at 33.55%, the highest in the study. ....	355
Figure 9. 88: Setback spaces are indiscriminately used to display various articles of trade as practiced by Igbo traders in Ado-Ekiti. ....	359
Figure 9. 89: Carefully greened setbacks protected by colorful railings are now overgrown with weeds along Ikere Road in the new development area of Ado-Ekiti. ....	360
Figure 10. 1: The interrelated principles of sustainable development evolve the combination of inclusive growth with green growth and green economy to alleviate poverty, inequality and degradation .....	377
Figure 10. 2: The African Polycentric Urban Governance Model (APUGM): the Lagos example. ....	378

Figure 10. 3: Strategic Urban Greening Intervention Model for Socio-Economic and Environmental Sustainability in Ado-Ekiti Green City.....	383
Figure 10. 4: The six perspectives of the sustainable city developed by KPMG.....	384
Figure 10. 5: A conceptual diagram of a clean city. ....	385
Figure 10. 6: The Ado-Ekiti Comprehensive Greening and Spatial Regeneration Intervention Master Plan. .....	389
Figure 10. 7: The structural greening plan of the central area in the Core and Old Area morphological zone in the city.....	393
Figure 10.8: The structural greening plan of Ajilosun in the New Development Area morphological zone in the city.....	396
Figure 10. 9: The structural greening plan for the State Residential Estate, Oke-Ila in the PRE morphological zone of the city.....	395

## LIST OF TABLES

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Table 2. 1: Systematically selected wards/districts from unplanned core or old traditional areas, new development areas, as well as planned residential areas in Ado-Ekiti.....	23
Table 2. 2: Places or neighbourhoods systematically selected in each district from unplanned core or old traditional areas, new development areas, and planned residential estates in Ado-Ekiti.....	24
Table 2. 3: Houses selected from enumerated houses on each selected street at the rate of one (1) in every four (4) houses (25%) in the delineated study area in Ado-Ekiti.....	26
Table 6. 1: Types of Open Space.....	133
Table 6. 2: Minimum setbacks for use and development of land in Ekiti State, Nigeria.....	142
Table 7. 1: The African Green City Index depicting the ranking of green space in meters squared per persons.....	225
Table 9. 1: Public/institutional land use in the spatial structure of morphological zones in the city.....	253
Table 9. 2: Religious land use is more available in new development areas but virtually non-existent in planned residential areas in the spatial structure of morphological zones of the city.....	254
Table 9. 3: Industrial land use is sparse in the spatial structure of the capital city.....	256
Table 9. 4: Undeveloped land is scarcely available in the spatial structure of morphological zones of the city.....	256
Table 9. 5: Age of respondents in selected districts across the three morphological zones of the city.....	259
Table 9. 6: Marital status of respondents dominated by the ‘married’ in the three morphological zones of the city.....	260
Table 9. 7: Educational attainment of respondents in selected districts across the three morphological zones of the city.....	262
Table 9. 8: Responses for employment status in selected districts across the three morphological zones of the city.....	262
Table 9. 9: Income class of respondents in selected districts across the three morphological zones of the city.....	264
Table 9. 10: Type of land/building use in selected districts across the three morphological zones of the city.....	265
Table 9. 11: Response frequency on period of building construction in the threemorphological zones of	

the study area. ....	269
Table 9. 12: Distribution frequency of building locations along three categories of road identified in the study area. ....	272
Table 9. 13: Frequency distribution of plots by size in the three morphological zones of Ado-Ekiti. ....	278
Table 9. 14: Frequency response on percentage plot ratio development across the three morphological zones of Ado -Ekiti. ....	280
Table 9. 15: Availability of approved building plans for houses in the three zones of the city. ....	283
Table 9. 16: Front setbacks of buildings (meters) in the three morphological zones of Ado-Ekiti. ....	286
Table 9. 17: Left side air space of buildings (meters) in the three morphological zones of Ado-Ekiti. ...	288
Table 9. 18: Right side air space of buildings across the three morphological zones of Ado-Ekiti. ....	289
Table 9. 19: Rear setbacks of buildings in the three morphological zones of Ado-Ekiti. ....	290
Table 9. 20: Location of buildings along hydrological features in the morphological zones of Ado-Ekiti. ....	293
Table 9. 21: Relative building setbacks measured to drainages and water bodies in the morphological zones of Ado-Ekiti. ....	295
Table 9. 22: Categories of power transmission line near the location of buildings in residential districts across the three morphological zones of Ekiti State capital. ....	301
Table 9. 23: Building setbacks to identified power transmission lines in morphological zones of the city. ....	308
Table 9. 24: Development within setbacks and air spaces in residential districts across the three morphological zones of Ado-Ekiti. ....	310
Table 9. 25: Types of development within building setbacks and air spaces in residential district across the morphological zones of the capital city. ....	312
Table 9. 26: Development permits obtained for development identified within building setbacks and air spaces in residential districts across the morphological zones of Ekiti State capital. ....	315
Table 9. 27: Treatment of setbacks and air spaces deemed ‘undeveloped’ in the three zones of the city. ....	316
Table 9. 28: Usage of setbacks and air spaces deemed ‘undeveloped’ in the city’s morphological zones. ....	319
Table 9. 29: Development permits obtained for development identified within building setbacks. ....	320
Table 9. 30: Availability of open spaces in the morphological zones of Ado-Ekiti. ....	321
Table 9. 31: Enumeration of various open space types in the neighbourhood districts of morphological zones in Ado-Ekiti. ....	322
Table 9. 32: Typology of open spaces in Ado-Ekiti. ....	324

Table 9. 33: Ownership structure of existing open spaces in the morphological zones of Ado-Ekiti. ....	325
Table 9. 34: Existing condition and maintenance of open spaces in the morphological zones of Ado-Ekiti. .....	325
Table 9. 35: Existing state of incidental open spaces in neighborhood districts within the morphological zones of Ado-Ekiti. ....	326
Table 9. 36: The qualitative evaluation of identified open spaces showing their location, type, level, facility assessment, and the use to which they are put in Ado-Ekiti.....	328
Table 9. 37: Nature or type of encroachment on setbacks and open spaces in Ado Ekiti.....	336
Table 9. 38: Levels of encroachment on setbacks and open spaces along morphological divides in the capital city of Ekiti State.....	341
Table 9. 39: Main factors responsible for encroachment on setbacks and open spaces in the morphological zones of Ado-Ekiti. ....	342
Table 9. 40: Effects of encroachment on the city environment. ....	346
Table 9. 41: Governmental response to encroachment on setbacks and open spaces in the morphological zones of Ado-Ekiti. ....	350
Table 9. 42: Level of awareness of physical planning laws, regulations and codes with regard to setback and open space provision and maintenance, as well as green landscaping provision and utilization around buildings. ....	353
Table 9. 43: Landscape treatment of spaces around building on plots in the capital city.....	355
Table 9. 44: Assessment of the quality of environment across the morphological zones of Ado-Ekiti. ..	357
Table 9. 45: Assessment of government efforts in reclaiming setbacks and open spaces across the morphological zones of Ado-Ekiti.....	358
Table 9. 46: Effects of setbacks and open spaces reclamation across the morphological zones of Ado- Ekiti.....	359
Table 9. 47: Propensity of the utilization of reclaimed setbacks and open spaces for greening to improve environmental quality in Ado-Ekiti is approved by the vast majority of the people. ....	361
Table 9. 48: Opinions on the exclusive usage of reclaimed setbacks and open spaces for greening in the city. ....	362
Table 9. 49: Other uses to be incorporated into the greening of reclaimed setbacks and open spaces program in Ado-Ekiti.....	363
Table 9. 50: Willingness of the people to participate in the greening and transformation program in Ado- Ekiti.....	364

## LIST ACRONYMS AND ABBREVIATIONS

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<b>Acronym/Abbreviation</b>	<b>Meaning</b>
ABC-CLIO	American Bibliographical Center and CLIO Press
AELGA	Ado-Ekiti Local Government Area
AD	“Anno Domini,” a Latin phrase meaning “in the year of our Lord,” referring to the year of Christ’s birth, not ‘After Death’
APA	American Planning Association
APAP	Accelerated Poverty Alleviation Programme
APUGM	African Polycentric Urban Governance Model
ATM	Automated Teller Machine
B.C.	Before Christ: used in dating years, referring to an epoch before the estimated birth of Jesus
BCE	Epoch Before the Common Era
c.	<i>circa</i> , a Latin word-the date can be established but only approximately
Cap.	Chapter
CBD	Central Business District
CBOs	Community based organisations
CEO	Chief Executive Officer
CIU	Collaborative for Inclusive Urbanism
CIR	Field survey code for circulation land use
CO	Carbon Monoxide
CO <sub>2</sub>	Carbon Dioxide
COA	core or old traditional area

COAs	core or old traditional areas
COM	Field survey code for commercial land use
CSIR	Council for Scientific and Industrial Research
D. C.	District of Columbia
DIMENSI	Journal of Architecture and Built Environment
D'MOSS	Durban Metropolitan Open Space System
DoE	US Department of Energy
Eco <sup>2</sup> City	Ecologically and economically sustainable city
ed.	Edited by; referring to one author
eds	Edited by; referring to two or more authors
EMG	Environment Management Group
EPA	United States Environmental Protection Agency Guide
et al.	and others (used in referring to academic books or articles having four or more authors)
FCDA	Federal Capital Development Authority
FCT	Federal Capital Territory
FGN	Federal Government of Nigeria
FRN	Federal Republic of Nigeria
EIA	Environmental Impact Assessment
GDP	Gross Domestic Product
GiGL	Greenspace Information for Greater London
G.I.S.	Geographical Information System
GRA	Government Reservation Area

GRAs	Government Reservation Areas
UNEP/ GRID	Partnership of the United Nations Environment Programme and GRID, a centre collaborating with the UNEP located in Arendal, Norway
GSM	Global System for Mobile Communication, a digital mobile telephony system that is generally used all over the world.
GVA	Gross Value Added
HND	Higher National Diploma
H/W	Building-height-to-street-width ratio
ICP	Inclusive Cities Project
ICT	Information, Communication and Technology
IEA	International Energy Agency
IISD	International Institute for Sustainable Development
INEC	Independent National Electoral Commission
IND	Field survey code for industrial land use
IPA	International Planning Associates
IPCC	Intergovernmental Panel on Climate Change
km	Kilometer
km <sup>2</sup>	Square kilometer
KPIs	Key Performance Indicators
KPMG	The name "KPMG" was adopted on the merger of KMG (Klynveld Main Goerdeler) and Peat Marwick in 1987.
LADWP	The Los Angeles Department of Water and Power
LAUTECH	Ladoke Akintola University of Technology, Abeokuta Nigeria

LGA	Local Government Area
LGAs	Local Government Areas
LLC	Limited Liability Company
L.S.L.N.	Ondo State Laws of Nigeria
m	meter
m <sup>2</sup>	square meters
MBOs	Membership-based organizations
MDGs	Millennium Development Goals
n.d.	No date can be established
NDA	New development area
NDAs	New development areas
NDE	National Directorate of Employment
N.E.P.A	National Electric Power Authority
NGOs	Non-Governmental Organisation
NITP	Nigerian Institute of Town Planners
No.	Number
NPC	National Population Commission
NRPA	National Recreation and Park Association
NURPL	Nigerian Urban and Regional Planning Law
NY	New York
NYC	New York City
ODSG	Ondo State Government
OD.S.L.N	Ondo State Laws of Nigeria

PAN	Scottish Government Planning Advice Note
PBS	Public Broadcasting Station
PDF	Portable Document Format
PHE	Private housing estate
PHEs	Private housing estates
PRE	Planned residential area
PREs	Planned residential areas
PUB/INST	Field survey code for public or institutional land use
QCAU	Quality Control and Assurance Unit
REC	Field survey code for recreational land use
REL	Field survey code for religious land use
RES	Field survey code for residential land use
ROW	Rights-of-way
SAN	Senior Advocate of Nigeria
SAPI	South African Planning Institute
SER	Field survey code for land use devoted to circulation network
SHE	State Housing Estate
SHEs	State housing estates
SPSS	Statistical Package for the Social Sciences
SUDS	Sustainable urban drainage systems
TOPREC	Town Planners Registration Council of Nigeria
UK	United Kingdom
UN	United Nations

UNCHS-Habitat	United Nations Human Settlements Programme
UND	Field survey code for undeveloped land
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNEP/GRID	United Nations Environment Programme/Global Resource Information Database (Spatial Data Clearinghouse)
UNEP-EMG	United Nations Environment Programme-United Nations Environment Management Group
UNESCO	The United Nations Educational, Scientific and Cultural Organization
UNHSP	United Nations Human Settlement Programme
URDT	Urban Design Research Team
USA	United States of America
VGC	Victoria Garden City, Lagos
WAI	War against Indiscipline
WCED	World Commission on Environment and Development
WHO	World Health Organisation
WIEGO	Women in Informal Employment: Globalising and Organising
3Rs	reduce reuse recycle

## CHAPTER ONE

### INTRODUCTION AND BACKGROUND TO THE RESEARCH

---

#### 1.0 Introduction

In planning parlance, setbacks are space delineation mechanisms, through regulation, that control and protect urban elements in order to promote a quality environment. These open spaces enhance safety and green the urban web. They are also social spaces that are accessible to the entire citizenry, irrespective of age, race, gender, class or creed. Such spaces include squares, plazas, parks, playgrounds, gardens, market places, incidental open spaces, green spaces, private roads, public right-of-ways, greenways, waterfronts, beaches and spaces covered with vegetation. However, urbanization, accompanied by population growth, has impacted these spaces such as setbacks, open spaces and forests, which are continuously developed, depleted, destroyed, and abandoned. In some urban centres, forests have almost disappeared, and there have been subdivisions of setbacks and open spaces along roadways, public utility lines, rivers, streams and drainage channels to accommodate the demand for various human activities, mostly commercial in nature. It appears that developers make incursions into public land without recourse to statutory provisions. This is exacerbated by ineffective development control mechanisms.

The reclamation of open spaces, setbacks, right-of-ways and flood plains is necessary for sustainable urban development. To reclaim means to recover, recapture, repossess, retrieve, regain, get back, take back, recoup, redeem, rescue, or salvage something that has been usurped, lost, misplaced, damaged, wasted or rendered useless. It was originally used by the US Bureau of Reclamation to retrieve water by damming streams but has now gained acceptance in river, wastewater, mine, and land reclamation. According to the American Society of Mining and Reclamation (2012), in some parts of the United States, the term 'reclamation' refers to the practice of returning disturbed land to an improved state. In Alberta, Canada, the provincial government defines reclamation as the process of reconverting disturbed land to its former or other productive uses (Powter, 2002). Land rehabilitation is the general term used to describe reclamation in Oceania (Vianello, n.d.).

Land reclamation, otherwise known as land fill or filling is the mechanical process used to create ‘new land’ known as reclamation ground or landfill from an ocean, lagoon, bay, riverbed, or lake. Typical examples of reclaimed land are the Marina Central Business District (CBD) and the on-going Eko Atlantic City in Lagos, Nigeria, the city of Rio de Janeiro, Brazil, and Wellington, New Zealand which were largely built on reclaimed land. Other examples are a large portion of the Helsinki city center in Finland, the Cape Town foreshore in South Africa, parts of Dublin, Ireland, the Chicago shoreline in the United States, Nagoya Central Airport, Japan, and parts of Perth, Australia. The Palm Islands, the World, and the hotel Burj al-Arab off the Dubai waterfront in the United Arab Emirates are examples of artificial islands, while the Flevopolder in The Netherlands happens to be the world’s biggest artificial land mass surrounded by water. The purpose of these interventions is to provide land supplements for development in the urban setting. In this study, reclamation refers to the retrieval of setbacks and public open spaces that have been willfully or erroneously developed as a result of weak legislation, faulty implementation, socio-economic challenges, and public ignorance in order to green the recovered spaces, while incorporating select uses and activities to promote a sustainable urban landscape in a regional capital in southwest Nigeria.

Green in the landscape indicates areas that are covered with grass, trees, hedges, climbers or other plants. In general, green refers to an area of grass, especially in the middle of a town or village such as a town green and village green. Greening is therefore the embellishment of indoor and outdoor spaces with grass and other plants. It is also the process of transforming artefacts such as a space, lifestyle or brand image into a more environmentally friendly version. The act of greening involves incorporating ‘green’ products and processes into an environment such as the home, work place, outdoor space, and general lifestyle that support urban sustainability. In political parlance, the term ‘green’ is therefore concerned with defending or supporting the protection of the environment as a political principle. The Green Party of Germany is an example which is worthy of emulation in the study area.

The Environment Agency’s (2000) definition of sustainable development goes beyond wealth creation and environmental protection, and includes both the current generation and future generations. This implies the need for social progress, which recognizes all people’s needs,

prudent use of natural resources, high and stable levels of economic growth and employment, and effective protection of the environment (Cullingworth and Nadin, 2002). This led to the addition of a fourth value, liveability (to the three Es, being environment, economy, and equity), which evolved from the definition of sustainable development by the environment and development Commission of the United Nations. This widely-used definition advocates best practices for the present generation to satisfy their own necessities of life while giving equal opportunities for generations unborn to satisfy their own needs in the same environment (WCED, 1987). A triangle is used to depict the three goals of sustainability at each point, and accentuate the basic antagonisms that arise along the axes due to conflict between opposing goals. These include the development conflict between equity and ecology, the property conflict between equity and the economy, and the resource conflict between ecology and the economy (Campbell, 1996). Resolution of these conflicts and the diffusion of tension between liveability and the goals on the sustainability prism, are the focus of contemporary planning practice, just as they applicable to solving human survival, livelihood, economic and environmental related issues in Ado-Ekiti, the study area.

There are different views of sustainability, ranging from the three Es (WCED, 1987), to the four basic objectives of a better quality of life (Cullingworth and Nadin, 2002), the triangular approach to resolving value conflicts (Berke et al, 2006), the 14 principles that encapsulate enduring land use development (Jepson Jr. and Edwards, 2010), or simply the ‘dualistic relationship between human beings and the ecosystem they inhabit’ (Morelli, 2011, p. 21). The bottom line is that unpolluted air, clean water, resourceful land, wholesome spatial arrangements, lush greenery, good governance and public participation are indispensable in achieving a truly sustainable city landscape and environment. Sustainability therefore implies that the world belongs to the past, present and future generations.

The rapid rate of urbanization in developing countries has led to various environmental challenges. Spontaneous rural-urban movement and migration through conflicts play significant role in driving population growth in African cities and all over the world. Various socio-economic problems are associated with such growth in developing countries, such as poverty, homelessness and unemployment (Bascom, 1959; Caldwell, 1969; Epstein, 1967; Onokehoraye,

1976; Simms, 1965). In 20<sup>th</sup> century Nigeria, the urban population growth rate was aggravated by rural-urban drift (Ojo-Fajuru, 2008). Onibokun and Agbola (1994) noted that at the close of the 20<sup>th</sup> century, urbanization was a global phenomenon as people migrated from the rural surroundings to cities. According to Adeniji (2004), an urban centre acts as a magnet due to its advantages over other types of settlements. This pattern increased demand for housing, commercial and industrial activities, and transportation routes, among others, puts pressure on land resources in urban areas. In turn, this leads to environmental problems such as encroachment on open spaces and setbacks to roads, water bodies and power lines, urban degeneration and disorder, environmental pollution and degradation, and urban sprawl. Ado-Ekiti, the growing capital city and commercial nerve centre of Ekiti State in Nigeria, is no exception, whereby amorphous development along major transportation corridors and the inner core areas of the city has reached alarming levels. This is detrimental to the urban landscape that lacks adequate open spaces and greenery and is thereby rendered dull and uninteresting, as it is currently being experienced in the city of today.

This study aimed to identify the causes and effects of widespread encroachment on setbacks, the building up of open spaces, and the lack of conscious efforts to provide new ones in Ado-Ekiti. It evaluated the challenges posed by inadequate greenery and excessive hard landscaping, and explored ways to reclaim lost open spaces and setbacks for the purpose of greening the city, and incorporating socio-cultural and economic activities for sustainable urban landscape development. It is hoped that the study will contribute to the creation of open spaces and urban places that will constitute ecological footprints in the city. The researcher holds that the effective adoption and rationalization of landscaping and placemaking concepts, models and techniques is central in mitigating the challenges of inadequate open spaces and greenery that threaten a sustainable city environment and overall national development.

### **1.1 Background to the study**

Strategically located within the southwest geopolitical zone in Nigeria - the most populous country in Africa - Ado-Ekiti is the major city of Ekiti State. It experienced waves of urbanization during the pre- and post-independence eras that brought about rapid changes in spatial utilisation, the scale of social and economic activities and lifestyles. The city's designation as the state

capital of Ekiti State in 1996 led to further population growth and land use activities. Ever increasing human activities, which border on livelihood and survival strategies, have put pressure on limited and inelastic land resources. This trend continuously triggers unplanned development characterized by the complete removal of vegetative cover and its replacement with built up areas. This situation is exacerbated by the faulty implementation of planning laws, by-laws, regulations and codes, resulting in ineffective development control. The syndrome of non-adherence to planning regulations and standards constitutes major source of master plan distortion, and hindrance to effective development control in planned estates (Ogundele et al., 2011). Ojo-Fajuru (2012) corroborates the disconnection between the statutory provisions of some extant laws on development control and their influence on the urban landscape. Enisan and Ogundiran (2014) identifies non-compliance with building bye-laws and regulations as the bane of Nigeria's urban environment, notably in aspects of disregarding zoning ordinances, insufficient building ventilation, inadequate setbacks and air spaces provision, and construction along utility lines. The results are intensive land use and uncoordinated use change in the city centre, environmental deterioration in the inner core areas, and sprawl into the suburbs with little or no regard for landscaping elements, which portend risk to life, environmental degradation, and impairment of aesthetics.

This increasingly amorphous urban development has led to encroachment on open spaces and setbacks from buildings to roadways, water bodies and power lines. The reasons include ignorance of by-laws on the one hand and impunity on the other, high levels of poverty, and the survival instinct, which cause people to seek to provide for themselves. Moreover, most Nigerian cities are not well structured, and the government has not developed the informal sector. In their quest for socio-economic development without depending on the state, citizens seem to willfully defy the law and develop any space within their reach with concomitant effects on development and safety standards, recreational opportunities, and environmental quality.

In built up areas, spaces devoted to hard landscaping appear to have overtaken those designated for soft landscaping. This increases urban glare, intensifies the spread of impermeable surfaces and reduces the soil's rain absorbing capacity, thereby increasing surface runoff, propensity to erosion and flooding in the study areas. This has aggravated the urban heat island syndrome, and

contributed to global warming and climate change, exposing the city's inhabitants to poor environmental conditions, increased risk of disasters, and reduced urban liveability.

In an effort to reclaiming setbacks and open spaces, the government ordered the demolition of buildings and structures abutting major roadways and those illegally built in open spaces and around public buildings. However, these measures have significant socio-economic and environmental consequences and are thus unsustainable. Different measures have been adopted to reclaim such areas in the morphological zones of the study area. This is expected to have different effects on the urbanscape in the three different locations.

This study sought to identify and analyse the socio-economic and environmental effects of encroachment on setbacks and open spaces, and government's efforts to re-establish them in the city of Ado-Ekiti. The aim of such reclamation is to achieve the "sustainability that exists as a three-legged table consisting of the environment, the economy, and society" (Morelli, 2011, p. 21). The study focuses on the lack of or inadequacy of open spaces for green landscaping in the environment, and examines the physical impacts that the dearth of such landscaping, or the excessive use of hard landscaping has caused in the study areas. It also includes a survey of the existing situation to generate socio-economic baseline data, and an evaluation of environmental quality occasioned by the insufficient or outright lack of green landscaping in the state capital city.

In essence, the research studies the effects of encroachment on setbacks and open spaces, and the impact of government efforts to reclaim these areas in order to green the capital city. It thus examines the spatial structure of the study area, the proportion of land use devoted to open space development, the causes and effects of encroachment on setbacks and open spaces, and the extent to which statutory provisions and extant rules have influenced this development. Other foci include an assessment of government efforts to reclaim setbacks and open spaces for green landscaping in the study areas, and the identification of any significant variations in such efforts in the different zones.

## **1.2 Problem Statement**

As the state capital, Ado-Ekiti has experienced unprecedented population influx and attendant issues of the increasing poverty level, human survival and livelihood. Population growth and increased concentration of various land use activities stimulate spatial demand for expansion, while the resultant pressure on limited land resources led to intensive land use, uncoordinated change in use, and amorphous sprawl with little or no conscious landscaping plan. Aledare (2008) observed that migration to urban spaces in the past 50 years is the main cause of social and environmental imbalances as many green areas disappeared to accommodate the growing population. Suzuki et al (2010) note that cities in developing economies are not only confronted with considerable challenges bordering on administration, finance and technicalities, but are constrained by the realities of urbanization taking place at a fast rate too.

Ado-Ekiti changes continuously in response to growth and expansion, with resultant socio-economic and environmental challenges. Despite extant planning laws and regulations, uncontrolled urban development appears to have stimulated encroachment on open spaces and setbacks from buildings with concomitant effects on urban form, environmental quality and recreational opportunities. This exacerbates the urban heat island syndrome and global warming that expose inhabitants to the risk of disasters and poor environmental quality. In built up areas, spaces treated with hard surfacing far exceed those devoted to green landscaping. This increases urban glare, reduces soil permeability, increases surface runoff and propensity to erosion and flooding, and reduces urban environmental quality and liveability. A relationship appears to exist between the use of green landscaping techniques and the quality of the urban city environment.

However, governmental efforts to reclaim setbacks and open spaces in the capital city by demolishing buildings and structures on usurped and open spaces around public buildings pose significant socio-economic and environmental challenges. Ojo-Fajuru (2010) notes that these include the loss of housing stock and prime business locations, disruption of business activities, displacement of people, breaking of family ties, and contentious issues relating to compensation and resettlement. Variations are apparent in such efforts across the morphological zones of the city that are likely to have different effects on the soft landscaping of the urbanscape.

### **1.3 Main Question**

The study's main question is:

What are the extent, causes and effects of encroachment on setbacks and open spaces, and the impacts of government efforts to reclaim them for greening in the capital city?

#### **1.3.1 Subsidiary questions**

The subsidiary crosscutting questions to be asked are:

- i. What is the spatial structure of the study area?
- ii. In what ways have population growth and migration affected the morphological development of the regional capital city?
- iii. Is there any recognizable proportion and variation between the land use and the portion devoted to open spaces and green landscaping development in different zones of the capital city?
- iv. In what condition do incidental open spaces exist within the urban web?
- v. To what extent is the encroachment on setbacks and open spaces in the city? What is responsible for this magnitude of encroachment on setbacks and open spaces in the various zones of the city?
- vii. Does the encroachment on setbacks and open spaces causing any problems in the landscape and environment of the city?
- viii. How effective are planning regulations, byelaws, codes, and extant laws in controlling development within setbacks and open spaces the city?
- ix. Are there factors determining the effectiveness of these planning enactments on development control in the city region?
- x. What problems are the efforts of government in reclaiming setbacks and open spaces generating in different parts of the study area?
- xi. Have the people's poverty level, livelihood, survival strategies, priorities and economic activities been taken into consideration in the planning instrument and greening programme?
- xii. Is there any significant variation in the efforts of government in reclaiming setbacks and open spaces for greening in the morphological zones of the study area?

## **1.4 Aim and objectives**

The aim of the research is the broad goal statement that defines the purpose and direction of this research, while the objectives are specific but measurable steps linked to research questions as operational guides that ensure focus toward the attainment of the set goal.

### **1.4.1 Aim**

The aim of the study is to examine setbacks and open space characteristics, the extent of their encroachment, the associated problems, and analyze the efforts of government in reclaiming the encroached spaces and utilize them to green the city and establish sustainable urban landscape in Ado-Ekiti, Nigeria.

### **1.4.2 Objectives**

The objectives of this study are to:

- analyse the spatial structure in the morphological zones of the study area;
- examine the socio-economic characteristics of residents in different areas of the city;
- determine land use proportion devoted to open spaces and green landscaping;
- analyse the magnitude, factors and effects of setbacks and open space encroachment in the different parts of the study area.
- evaluate the extent to which statutory provisions and extant rules have influenced development control on open spaces and green landscaping in the study area;
- examine the efforts of government in reclaiming setbacks and open spaces for greening in the diverse morphological zones of the study area;
- determine the people's priorities, economic activities, and survival strategies, to be incorporated into the greening programme in the capital city.

## **1.5 Formulation of hypotheses**

### **Working hypothesis**

Encroachment on setbacks and open spaces in regional capitals is a factor of urbanization, population explosion, human survival tendency, increasing spatial demand for land use activities, weak legislation, and lack of public enlightenment. The reclamation, greening, and inclusive

utilisation of such spaces will restore functionality and a good quality urban environment, thereby promoting socio-economic and environmental sustainability.

### **1.6 Possible outcomes of the research**

The potential outcomes of the study include identification of the reasons for encroachment, the socio-economic and environmental effects of encroachment on setbacks and open spaces, the purpose of reclamation, and the benefits associated with green landscaping. The study thus contributes to the body of knowledge on the reestablishment of setbacks and open spaces in state capitals to promote economic development, social cohesion, aesthetics with environmental quality, and desirable placemaking. It offers solutions that would reduce glare, stem erosion, mitigate flooding, abate global warming, and curtail climate change.

The research makes an original contribution to knowledge by providing critical data on the socio-economic attributes of residents, spatial structure of the capital city, the proportion of land use devoted to open spaces, the extent of encroachment on setbacks and open spaces, government efforts to reclaim setbacks and open spaces, the purpose of reclamation, and the integration of the tripod of sustainability into greenery. It provides an inventory of existing landscape elements, and a checklist of additional plantings, paving and street furniture. The study culminates to the development of an adaptive spatial and administrative model that will be used as working concept to alleviate poverty, promote green economy, ensure space efficiency, cleanliness, improve living standards, boost green growth, maintain green spaces infrastructure, and enhance the quality of the city environment. These are expected to beef up the database for planning purposes, and thereby constitute a policy guideline on landscape planning, construction and maintenance in Ekiti State and beyond.

### **1.7 Justification for the study**

To the researcher's knowledge, no previous study has been conducted on the socio-economic and environmental implications of the encroachment on setbacks and open spaces in Ado-Ekiti. Fadamiro (2001) noted that except for a few studies, landscape planning has not been the focus of Nigerian environmental science researchers. According to Falade (1998), this can be attributed to

a lack of landscape planning, design and management objectives in promoting overall urban development.

Ado-Ekiti is a typical traditional Yoruba city situated in the heart of the South West Geo-political Zone of Nigeria. Its socio-political and economic influence in the region dates back to the pre-colonial era when the city emerged as an important Divisional Council headquarters and commercial trading centre. Ado-Ekiti was originally selected for this study as preliminary observation indicates that the state of the built environment is unplanned and chaotic, whereby public spaces are contested and the entire landscape is virtually devoid of adequate greenery. This attribute appear to be characteristic of other towns and cities in the South West zone and, indeed, in other parts of Nigeria. There is a need to assess the effects of environmental degradation and disorderliness in the capital city. It is expected that, as a growth center, Ado-Ekiti will experience rapid growth in population, widening gaps in the levels of poverty and inequality, and increasing space demand for human and economic activities. This requires interventionist approach, sensitive planning, effective monitoring and consistent maintenance. The study therefore hinged on the need to address the imbalances inherent in the urban environment and promote urban liveability, comfort, environmental quality and sustainability.

Government's effort to reclaim usurped setbacks and open spaces is a novel one that took many residents by surprise, especially those that believed the spaces were extensions of their properties that they have the liberty to develop at will. The controversy generated by the claims and counterclaims to these spaces and the manner in which they were recovered, as well as the behavior of the residents needs to be thoroughly examined. Other salient issues that require attention are the dissemination of information or technical knowledge regarding urban development control, and the means of implementation.

Moreover, the development approach within the study area is such that landscaping is not prioritized. Rather, it is subject to the availability of funds or is neglected outright, giving rise to the negation of set standards and regulations, leaving built-up areas bare, treated with hard surfaces or left with scanty green landscaping.

This study sought to fill these research gaps by addressing fundamental issues relating to the socio-economic and environmental effects of the encroachment on setbacks and open spaces in the study area, as well as the impact on the quality of the urban built environment. It advocates for a shift from hard to soft landscaping, and the incorporation of socio-economic activities as poverty reduction responses within city landscaping, legislation and development processes, thereby establishing the benefits associated with green landscaping with the intention of achieving a sustainable urban landscape in Ado-Ekiti.

### **1.8 Scope of the study**

The scope of this project was the identification and impact analysis of encroachment on setbacks and open spaces, government's efforts to reclaim these public spaces, and the socio-economic and environmental effects of re-establishing them as inclusive green spaces in Ado-Ekiti. The study focused on the lack of or inadequacy of open spaces for green landscaping in the environment and examined the physical impacts of the dearth of green landscaping, or the excessive use of hard landscaping on the general environment in the study area.

The study included a survey of the existing situation to generate socio-economic baseline data and an evaluation of environmental quality. This provided the basis for an evaluation of the major indicators of changes in social, economic and environmental attributes and how these indicators have responded to the current situation occasioned by the insufficient or outright lack of green landscaping in Ado-Ekiti. The city was delineated and subdivided into districts within unplanned core residential neighbourhoods, new development areas, and planned residential housing estates. Roads were classified into different categories of transportation corridors to determine the extent of encroachment on setback and open spaces.

Apart from pinpointing the problems, the morphological presentation of places within identified districts, and the detailed analysis of data enabled the researcher to propose adaptive model for pragmatic restoration and conservation measures in accordance with the goals and objectives of the research.

## **1.9 Outline of the thesis**

The thesis is structured as follows:

### **Chapter one: Introduction and background to the research**

This introductory chapter set out the background to the study, the problem statement, the main research question and subsidiary questions, the study's aim and objectives, working hypothesis, and possible outcomes, the justification for the study, and the scope. The chapter concluded by outlining the structure of the thesis.

### **Chapter two: Research methodology**

Chapter two discusses the methodology employed to conduct the study. It includes the delineation of the study area, the research population, definition of the sample frame, sample size and sampling procedure, the techniques, instruments, tools and procedure for data collection, secondary data, key innovative approach to challenges of information gathering and data collection, as well as data processing and analysis.

### **Chapter three: Theoretical background and conceptual framework**

This chapter presents the relevant theories, conceptual framework, ideologies and principles which underpinned the research. These include the man-environment interaction theory, which encapsulates the theory of environmental determinism, the theory of possibilism, the Malthusian theory, the theory of sin, the theory of the end of the world, and the central place theory. Applicable concepts include urbanization, urban decay, setbacks and open spaces, landscape planning and landscape architecture, the urban open space, new urbanism, new pedestrianism, placemaking, and the sustainable city, among others. Ideologies considered revolve around phenomenology, post-structuralism, and post-modernism. The relevance, suitability and acceptability of pertinent theories, concepts and ideologies are discussed. They are comparatively analysed to showcase their strengths, expose their shortcomings, review their application in previous research, and identify possible modification for adaptation to this research study.

## **Chapters four-seven: Literature review**

Four chapters are devoted to a comprehensive survey and review of previous research relevant to this study. The purpose is to identify trends in the global literature, compare the main arguments, and identify the research gaps which this study aimed to fill. Topical issues in relation to the study are categorised and examined as follows:

### **Chapter four: Historical evolution, town and garden, urbanisation and city development**

This chapter traces the historical evolution of cities from the medieval period to the present, and examines urbanization, city development and urban land issues that relate to open spaces and greening. It highlights the city planning structure, including renaissance gardens, baroque gardens, oriental gardens and space, and contemporary gardens and space. Industrial cities/the garden city response, and historical cities in time and space including forest reserves, traditional cities and landscaping are discussed, with an emphasis on the structure of Yoruba cities in the southwest geopolitical zone of Nigeria, and capital cities, especially in the regional setting. In contemporary parlance, the sustainable city or eco city as it relates to conservation in terms of energy, landscape and ecological footprints like forests and nature reserves is highlighted to showcase practical achievements and international examples. The chapter ends with a discussion on cities in Nigeria focusing on Ado-Ekiti, Ekiti State capital and the case study area, in the Southwest Geopolitical Zone.

### **Chapter five: The environment, urbanism and challenges to sustainable green city landscape.**

This chapter is devoted to examining the issues on environment and challenges of global warming and climate change brought about by vegetal depletion, excessive hard landscaping and encroachment on public spaces. Matters relating to transportation, movement lines, and management of the various categories of waste as they affect cleanliness, livability and environmental sustainability in the city are also considered in the chapter. The significance of public participation, public education and enlightenment, information dissemination and management to the provision, reclamation, reestablishment and maintenance of setbacks and open spaces in the city environment brings this chapter to a close.

### **Chapter six: Setbacks and open spaces: attributes, legal framework**

This chapter examines definitions, typologies and constructions of setbacks and open spaces, especially in the city setting. The legal framework that guides the establishment and maintenance of setbacks and open spaces in urban areas is examined. This includes the spatial development framework, master planning policies and implementation strategies. National, state and local government regulations on development control, such as planning laws, by-laws, health legislation, decrees, codes and edicts are examined in order to identify contraventions and encroachment, and at the same time, justify reclamation of illegally developed setbacks and open spaces in cities. Emphasis is placed on public awareness and involvement, priority versus greening, functional usage, potential economic activities, socio-cultural integration, the environmental sustainability of setbacks and open spaces, and the overall landscape of the city.

### **Chapter seven: The urban landscape, landscaping, and the green city**

Issues relating to the urban landscape, landscaping features and attributes of the green city are considered in this chapter. These include the definition of landscaping, soft or green landscaping, hard landscaping, and engineering landscaping; their advantages, combination and typical examples. The preference for green landscaping and its efficacy in improving urban liveability and ensuring environmental sustainability is explored. The green city concept and green city index in cities around the world are also critically examined.

### **Chapter eight: The profile of case study area**

The eight chapter sets out the geophysical, evolutionary, demographic, socio-economic and cultural attributes of Ado-Ekiti. Exposition on land use patterns, development trends, the factors that influence development in the city constitute vital discussion in the chapter.

### **Chapter nine: Research analysis and data presentation on case studies**

This chapter presents and analyses the study's results based on specific case studies in the study area. It includes the respondents' socio-economic attributes, the spatial structure of the city, spatial distribution and typology of the setbacks and available open spaces, the extent of encroachment on the open spaces and setbacks, an assessment of government's efforts to reclaim setbacks and open spaces, and an impact assessment. The findings are discussed in relation to the

study's objectives and are subjected to comparative analysis in the three morphological areas in the city. The hypothesis is tested and conclusions and inferences are drawn from the data analysis in relation to the study's theoretical framework, and as basis to formulate the greening programme for Ado-Ekiti.

### **Chapter ten: Conclusion and recommendations**

This chapter presents a summary of the study as well as policy recommendations. It includes a detailed discussion in order to select the most appropriate model, strategies and programmes to forestall indiscriminate encroachment on open spaces and setbacks, green the city, maintain green spaces, incorporate socio-economic activities and sustain the overall city landscape and environment. The contribution of the research to knowledge concludes the chapter.

### **Reference**

This part contains a comprehensive list of authors cited in the work, written in the format of the Harvard author-date referencing system.

### **Bibliography**

This section contains a list of books, journals articles and materials read but are not in literature review, theoretical framework and reference.

### **Appendices**

This part contains mathematical calculations on population projections, samples of questionnaire interview and focus group discussion guides, informed consent letter as well as gate keepers' permissions.

## CHAPTER TWO

### RESEARCH METHODOLOGY

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#### **2.0 Introduction**

The research methodology gives credibility to a study. It is important to select appropriate methods, taking into consideration the research problem, and the study's aim and objectives. Olotuah (2000) described research methodology as the procedure and methods involved in data gathering, processing, analysis and presentation.

This chapter presents the research methodology employed to conduct this research study. It discusses the research design, the research population, morphology of places, delineation of the study area, and the definition of the sample frame, sample size and sampling procedure. It specifies techniques, tools, methods, and procedures used to solicit relevant information and for the collection of primary and secondary data. The methods of data processing and analysis are also highlighted. The sequence of the research methodology for the study is depicted in Figure 2.1

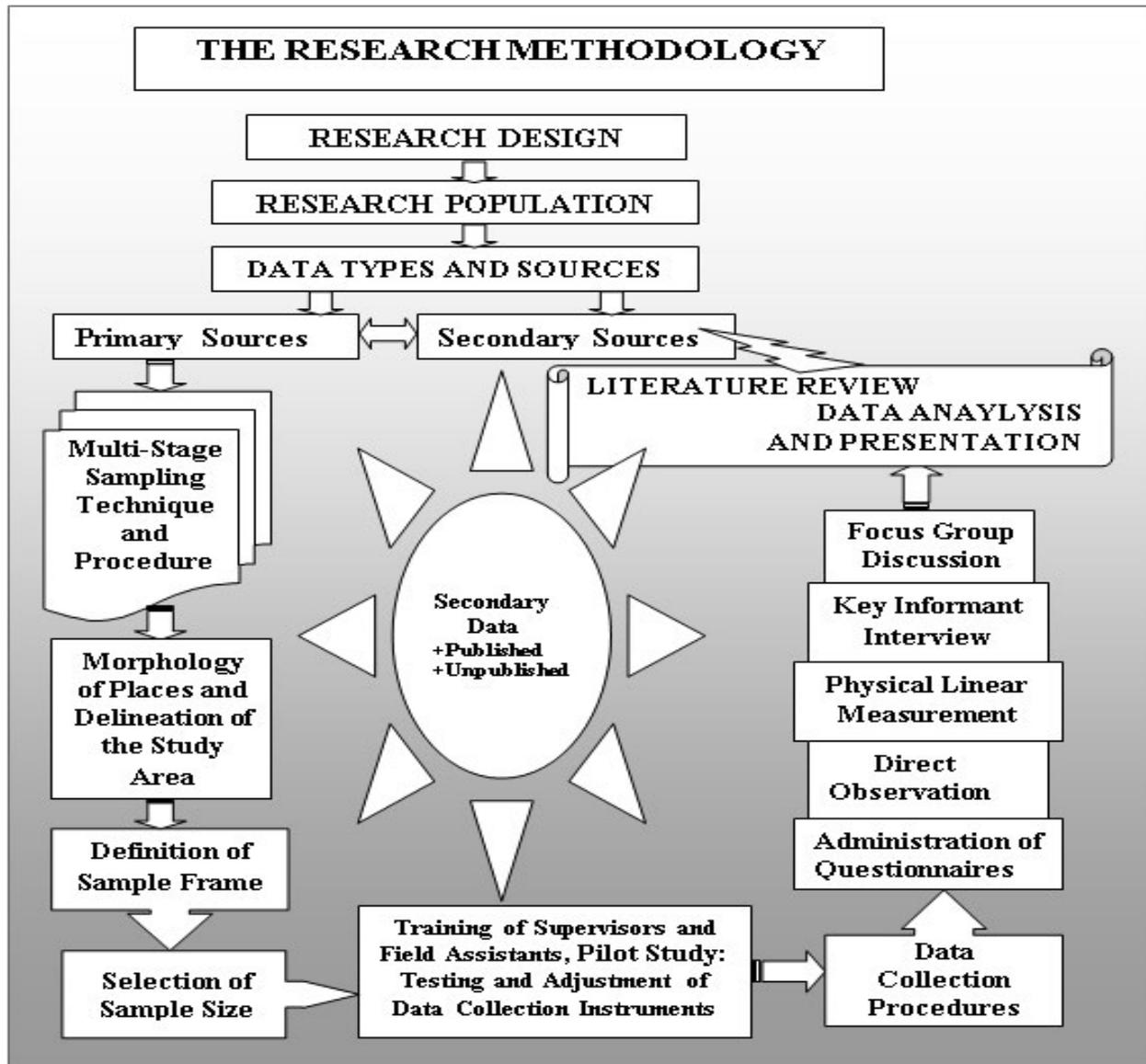
#### **2.1 The research design**

This research study commenced with the problem identification, a statement of the aim and objectives, and the formulation of hypotheses. This was followed by data collection and analysis with the aid of statistical techniques, testing hypothesis, and drawing inferences, development of models, recommendations and conclusion.

#### **2.2 Research population**

In 1963, Ado-Ekiti's population stood at 157,519 (Nigerian Census, 1963). The National Population Commission estimates in 2001 indicated that the population had increased by 75.56% in 38 years to 208,414, which translated to 1.99% growth rate per annum (National Population Commission, 2001). It is part of the cohort of fastest growing emerging capital cities in the southwest zone and Nigeria in general. As a growth centre, Ado-Ekiti attracts rural migrants from surrounding communities and beyond, as well as urban and international migrants. The rate of population growth poses significant challenges in terms of land, demand for which appears to

outstrip supply for residential, commercial, industrial, public and open space development. Using 2001 as the base year, and a population growth rate of 2.9% per annum (according to a National Population Commission, Federal Office of Statistics, National Planning Commission, and World Bank Release), the projected population figures for Ado-Ekiti for 2008, 2010, 2015 and 2020 are 254,578, 269,563, 310,995, and 358,764 respectively (see Appendix I).



Source: Researcher's Design, April 2012.

Figure 2. 1: The sequence of the research methodology for the study.

## **2.3 Data types and sources**

The data for this study were collected from primary and secondary sources as shown in the model sequence of the research methodology illustrated in Figure 2.1.

### **2.3.1 Primary data specification and sources**

Primary data were collected directly through field survey with questionnaires, key-informant interviews, focus group discussions, observations, and ground measurements. The starting point was the specification of issues and data to be investigated. These include the socio-economic attributes of residents including age, gender, marital status, educational background, occupation, and income bracket. Information on the spatial structure of the study area in terms of the type, distribution and proportion of land uses was solicited from residents who have physical contact with them. The nature of development within residential, commercial, industrial and institutional land uses in terms of population, density and interrelationship were physically examined. Economic activities and intensity of use in commercial and industrial precincts were scrutinized relative to space integration within residential neighbourhoods, public spaces and statutory provisions.

The availability, typology, number, size and spatial distribution of public spaces such as parks, squares, green spaces, and the existing situation of landscaping elements in the study area were considered in terms of relative distance from residences and conformity with standard regulations. The probe into setbacks of buildings and development to roadways, public utilities, water bodies and canals, as well as the plot coverage ratio based on objective assessment by the respondents, and buttressed by on-site observation and physical measurements. This provided insight into the effectiveness of planning laws, level of compliance with extant development control regulations, nature of encroachment on public spaces, factors responsible for space contestation, and the attendant effects on the city environment.

Respondents' assessment of government's efforts to reclaim and green setbacks and open spaces in the study area was sought. Their views were also considered as to whether the reclaimed public spaces should be exclusively preserved as green areas to improve the quality of the environment

or the incorporation of controlled socioeconomic activities would improve livelihood and promote overall sustainability in the capital city. Peoples' willingness to participate in greening, placemaking and transformation activities/programmes in the city was also investigated.

Thereafter, the sampling technique and procedure was determined. This spurred the morphology of places and delineation of the study area into the sample frame, which aided the selection of the sample size. The data collection methods and instruments were devised and tested for the smooth take-off of the field work.

### **The morphology of places and delineation of study area**

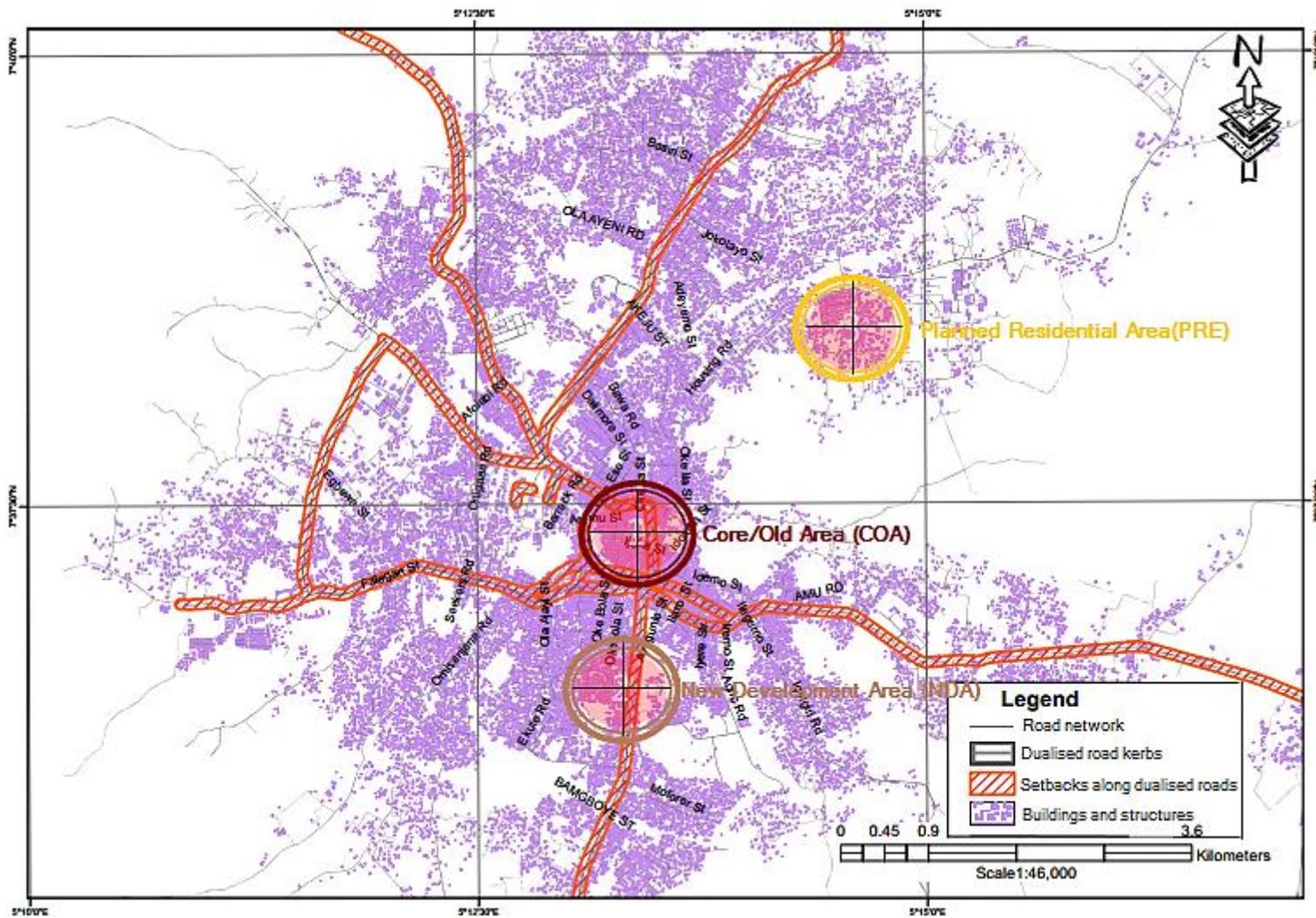
In the spatial analysis of places carried out in Ado-Ekiti, neighbourhoods were categorized along morphological lines into old unplanned traditional core areas (COAs), new or recent neighbouring colonial development areas (NDAs), and planned post-colonial or contemporary residential estates (PREs) such as government reservation areas (GRAs), state housing estates (SHEs) and private housing estates (PHEs) as shown in Figure 2.2. It was based on these homogenous premises that some places were selected into the sampling frame as shown in the model of the research methodology depicted in Figure 2.1.

### **Sample frame**

The sampling frame constitutes the total population within which some entities were selected to form the samples. Oyesiku and Omitogun (1999) equate it to a checklist of components from which the samples are necessarily taken. Houses abutting major, minor, and access roads in the selected morphology of places in the city were delineated as detailed in Tables 2.1, 2.2 and 2.3. All the houses selected in the delineated areas were listed as individual units in the sampling frame, preparatory to sample selection.

### **Sample size**

The total number of samples selected from the sample frame constitutes the sample size. As a rule, sample selection must be made to reflect the fundamental attributes of the target population



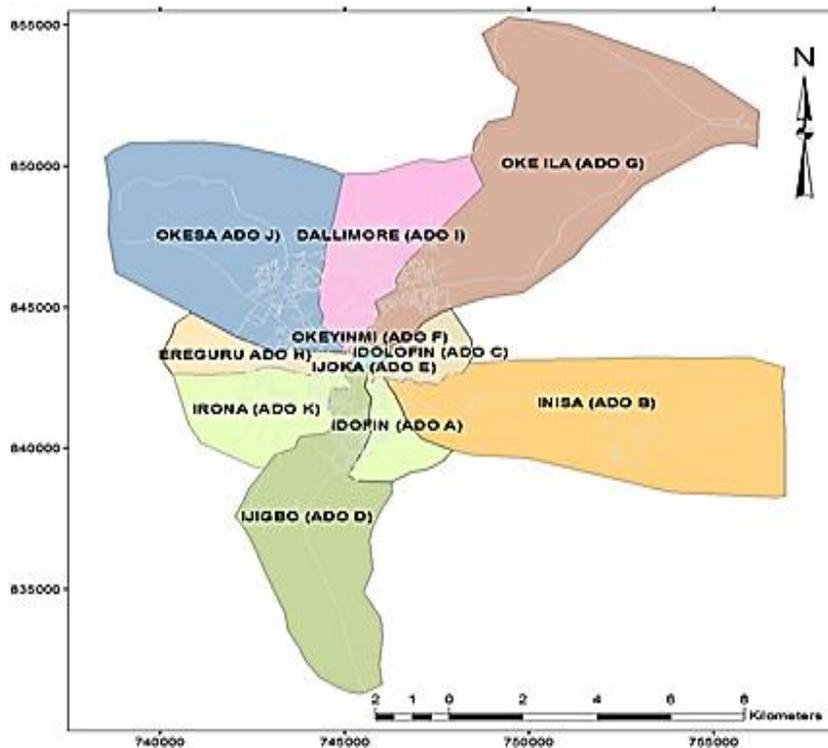
Source: Drawn by the Researcher based on field survey, July 2015.

Figure 2. 2: Morphology of places as basis for neighbourhood selection into the sampling frame.

(Oyesiku and Omitogun, 1999). It is also implied that the smaller the population, the higher the sampling ratio necessary to obtain an accurate sample for more comprehensive and reliable data. However, the fact that a larger population has wider coverage and permits a smaller sampling ratio for equally representative and dependable samples was not overlooked. The percentage of the sample size in the areas delineated for this study is 24.93%.

### The sampling technique and procedure

Sampling is the selection of a population sample to represent the whole (Olatunde-Aremu, 2004). It is the process of examining a representative number of items (people or things) in the whole population or universe for gaining an understanding of some attributes of the total population,



Source: Department of Survey and Geo-informatics, Federal Polytechnic, Ado-Ekiti  
 Figure 2. 3: Delimitation of wards along existing residential districts in the Ado-Ekiti.

based on the characteristics of the sample (Ojo-Fajuru, 2010). The most suitable sampling procedure for this research study was multi-stage sampling which involves taking samples from samples. As an extension of cluster sampling, stage sampling contains the samples in stages (Oyesiku and Omitogun, 1999). First, the entire city was stratified into districts in order to reduce the relatively large municipality to manageable proportions without losing their attributes. This subdivision began with the delineation of the city into political wards (see Figure 2.3) based on the Independent National Electoral Commission’s delimitation contained in the *Atlas of Electoral Constituencies* used for the 2007 General Elections (INEC, 2007).

The entire geographical area of Ado-Ekiti as a unit in Ekiti Central I Federal Constituency (comprising of Ado-Ekiti and Irepodun/Ifelodun LGAs) was divided into two along the LGA boundaries. In Ado-Ekiti LGA, there are two federal constituencies, namely, Ado I

Morphological Category	State Constituency	Ward	District/Place
Unplanned Core or Old Traditional Areas	ADO I	Ado ‘A’	Idofin
		Ado ‘B’	Inisa
		Ado ‘E’	Ijoka
	ADO II	Ado ‘H’	Ereguru
		Ado ‘L’	Igbehin
New Development Areas	ADO I	Ado ‘D’	Ijigbo
		Ado ‘F’	Okeyinmi
	ADO II	Ado ‘I’	Dallimore
		Ado ‘K’	Irona
Planned Residential Estates	ADO I	Ado ‘G’	Oke-Ila
	ADO II	Ado ‘J’	Okesa
<b>Total</b>	<b>3</b>	<b>2</b>	<b>11</b>

Source: Researcher’s compilation, June, 2015.

Table 2. 1: Systematically selected wards/districts from unplanned core or old traditional areas, new development areas, as well as planned residential areas in Ado-Ekiti.

(consisting of Ado ‘A’ Idofin, Ado ‘B’ Inisa, Ado ‘C’ Idolofin, Ado ‘D’ Ijigbo, Ado ‘E’ Ijoka, Ado ‘F’ Okeyinmi, Ado ‘G’ Oke-Ila ), and Ado II (comprising of Ado ‘H’ Ereguru, Ado ‘I’ Dallimore, Ado ‘J’ Okesa, Ado ‘K’ Irona Ado ‘L’ Igbehin, and Ado ‘M’ Farm Settlement). These thirteen (13) wards were structured along existing residential districts in the city as depicted in Figure 2.3 above and Table 2.1.

The second stage involved the systematic selection of some districts based on the three categories of neighbourhoods recognized in the morphology places in Figure 2.2 as: the unplanned core or old traditional areas (COAs), new development areas (NDAs) in the past thirty to fifty (30-50) years, and the planned residential areas (PREs) such as the GRA and housing estates as the sampling frame. In the unplanned core or old traditional areas, Ado ‘A’ Idofin, Ado ‘B’ Inisa, and Ado ‘E’ Ijoka were selected in Ado I state constituency, while Ado ‘H’ Ereguru and Ado ‘L’ Igbehin were picked in Ado II state constituency. Within the new development areas, Ado ‘D’ Ijigbo, and Ado ‘F’ Okeyinmi were selected in Ado I state constituency, and Ado ‘I’ Dallimore and Ado ‘K’ Irona in Ado II state constituency. As for the planned residential areas, Ado ‘G’ Oke-Ila in Ado I state constituency was selected along with Ado ‘J’ Okesa in Ado II state constituency. This made a total of eleven (11) wards/districts (see Table 2.1).

S/N	Morphological Category	Selected place/ District	Major Road	Minor Road	Access road
1.	<b>Unplanned Core or Old Traditional Areas (COAs)</b>	Idofin	Mathew Street	Idemo Street	Idofin Street
		Inisa	Odo-Ado Street	Inisa Street	Iyere Street
		Ijoka	Orereowu Street	Ajibade Lane	Orereowu
		Ereguru	Ereguru Street	Ogbon Oba	Ogbon Ado
		Igbehin	Igbehin Street	Igbehin	Atikankan
2.	<b>New Development Areas (NDAs)</b>	Ijigbo	Ajilosun Street	Okebola Street	Eribi Street
		Okeyinmi	Okeyinmi Street	Okutagbokutaleri Street	Oke Ila/Anu Odo/Okeyinmi Street
		Dallimore	Dallimore Street	Kajola Street	Oremeta
		Irona	Irona/Surulere	Ola Ajayi /Ekute/ Water Road	Irona Atunda Olu/ Oniyo Road
3.	<b>Planned Residential Estates (PREs)</b>	Oke-Ila (S.H.E.)	State Road	8 <sup>th</sup> Avenue	7 <sup>th</sup> Avenue
		Okesa (G.R.A.)	Secretariat Road	Deji Adegbite Street	Onigari Street
<b>Total</b>	<b>3</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>

Source: Researcher’s compilation, June, 2015.

Table 2. 2: Places or neighbourhoods systematically selected in each district from unplanned core or old traditional areas, new development areas, and planned residential estates in Ado-Ekiti.

The third stage of sample selection took place within the districts selected along morphological zones the city. Streets within each district were listed based on the three hierarchies of roadway along which they were in the selected districts. Streets along major (primary) roads, minor (secondary) roads, and access (tertiary) roads were randomly selected in each chosen district

within the morphological strata of unplanned core or old traditional areas, new development areas, and planned residential areas. This culminated in the selection of Mathew, Odo-Ado, Orereowu, Igbehin and Ereguru Streets along major roads in unplanned core or old traditional areas; Ajilosun, Okeyinmi, Dallimore Streets, and Irona/Surulere in new development areas and State Road, State Housing Estate and Secretariat Road, GRA in the planned residential estates.

In similar manner, streets selected along minor roads were Idemo and Inisa Streets, Ajibade Lane, and Ogbon Oba in unplanned core or old traditional areas; Okebola, Okutagbokutaleri, and Kajola Streets, and Ola Ajayi/Ekute/Water Road in new development areas; and 8<sup>th</sup> Avenue and Deji Adegbite Street in the State Housing Estate and GRA respectively in the planned residential estates. In the access road category, Idofin and Iyere Streets, Orereowu, Ogbon Ado and Atikankan were selected in unplanned core or old traditional areas, and Eribi, Oke-Ila/Anu Odo/Okeyinmi and Oremeta Streets and Irona Atunda Olu/Oniyo Road in new development areas. 7<sup>th</sup> Avenue in the State Housing Estate and Onigari Street in the GRA were selected for planned residential areas. The selected streets based on these modalities are presented in Table 2.2.

The sampling procedure progressed to the fourth stage where a house count was conducted. All the houses in each of the selected streets in the delineated morphological districts were listed to ensure an efficient sample. Twenty-five per cent of the houses in each of the districts were selected at the rate of one (1) in every four (4) houses, with a random choice of the first house. This resulted in the selection of 126 houses in Idofin district, 186 in Inisa district, 390 in Ijoka district, 372 in Ereguru district, and 360 houses in Igbehin district, all in unplanned core or old traditional areas. In the new development areas, 438 houses were selected in Ijigbo district, 294 in Okeyinmi district, 366 in Dallimore district, and 714 in Irona district. Finally, in the planned GRAs, 252 houses were selected in Okesa (GRA) district and 258 in Oke-Ila (SHE) district.

This made a total of 3,756 houses selected from a total of 15,066 houses, representing 24.93% of the houses in the delineated study area. This laid the basis for the final selection of respondents as shown in Table 2.3. Finally, drawing on the concept of a homogenous population, and given

District	Major Road	Total No of Houses	25% Selected	Minor Road	Total No of Houses	25% Selected	Access road	Total No of Houses	25% Selected	Total Selected/District
Idofin	Mathew Street	252	60	Idemo Street	143	36	Idofin Street	114	30	126
Inisa	Odo Ado Street	372	90	Inisa Street	222	54	Iyere Street	168	42	186
Ijoka	Orereowu Street	702	174	Ajibade Lane	588	150	Orereowu	258	66	390
Ereguru	Ogbon Oba	606	150	Ereguru Street	654	162	Ogbon Ado	162	60	372
Igbehin	Igbehin Street	750	186	Igbehin	408	102	Atikankan	294	72	360
Ijigbo	Ajilosun Street	1014	252	Okebola Street	486	120	Eribi Street	270	66	438
Okeyinmi	Okeyinmi Street	636	162	Okutagbokutaleri Street	300	72	Oke Ila/Anu Odo/ Okeyinmi Street	234	60	294
Dallimore	Dallimore Street	624	156	Kajola Street	510	126	Oremeta	336	84	366
Irona	Irona/Surulere	1236	312	Ola Ajayi/Ekute/Waterworks Road	1086	270	Irona/Atunda Olu/ Oniyo Road	522	132	714
Oke-Ila (S.H.E.)	State Road	474	120	8 <sup>th</sup> Avenue	288	72	7 <sup>th</sup> Avenue	258	66	258
Okesa (G.R.A.)	Secretariat Road	546	138	Deji Adegbite Street	240	60	Onigari Street	222	54	252
Total	11	7212	1800	11	4932	1224	11	2922	732	3756

Source: Researcher's compilation, June, 2015.

Table 2. 3: Houses selected from enumerated houses on each selected street at the rate of one (1) in every four (4) houses (25%) in the delineated study area in Ado-Ekiti.

the assumption that the socio-economic indicators of the households in the selected districts are the same (Olanrewaju, 1990), one (1) person, preferably the household head, was randomly picked in each of the selected houses and was interviewed using the questionnaire and unstructured interview methods. A total of 3,756 respondents were selected to provide answers and their views on the issues raised in the questionnaire highlighted below.

### Data collection instruments and procedures

An array of research instruments and methods was used to carry out the field study to generate data from primary sources. As shown in Figure 2.1, these included (i) a questionnaire, (ii) direct observations, (iii) physical linear measurements, (iv) key-informant interviews, and (v) focus group discussions.

In accordance with ethical requirements and objectives of the study, this research design makes it clear from the beginning not to interview underage persons; people who are intellectually or mentally impaired, emotionally unstable or physically stressed; medically sensitive, bodily unfit and medicinally dependent persons requiring high health care; as well as people in captivity, deprivation or in particularly vulnerable life situations. Moreover, the researcher adequately introduced the field exercise to the people and explained the purpose of the study of this nature in Nigeria. Hence the study was carried out in dignified and respectable manner that gained community support, allayed fear, eschewed intimidation, and provided good setting for dialogue between respondents and the researcher. This due process of ethical procedure allowed for voluntary participation that culminated to free and fair transfer of information.

### **Questionnaire**

Structurally, the questionnaire comprised of six sections, with a total number of 51 questions. These are: (i) Section A: Spatial structure of the study area (2 questions); (ii) Section B: Socio-economic characteristics of respondent (7 questions); (iii) Section C: Setback and open space characteristics, and pattern of encroachment in the study area (32 questions); and (iv) Section D: Effects of statutory provisions and extant rules on development control of setbacks, open spaces and green landscaping (3 questions). Others are : ( v) Section E: Government efforts in reclaiming and utilizing setbacks and open spaces in the city (3 questions); and (vi) Section F: Peoples' priority and participation on greening programme (3 questions). The last question solicited any other information that may not have been covered in the preceding questions.

The comprehensive questionnaire combined two-way, scale, and multiple-choice questions to elicit information directly in the field and generate primary baseline data. Such questions were structured to examine the socio-economic, physical and environmental attributes of randomly selected morphology of places in the neighborhood districts within the municipality. The resultant baseline data were utilized to substantiate the spatial structure of the study area, the availability and utilization of setbacks and open spaces in the capital city of Ekiti State.

Inquiries on the spatial distribution and typology of available open spaces, the extent, causes and effects of encroachment on the open spaces and setbacks, and government efforts to reclaim and

revamp green spaces in the capital city were captured in the questionnaire to assess the environmental impacts of the lack/inadequacy of open spaces and greenery in the cityscape. Also included in the questionnaire was the respondents' assessment of whether the reclamation and greening of setbacks and open spaces would improve environmental quality, other socio-economic activities that can be incorporated into the exercise, and readiness to participate in the transformation to sustainable city environment (see Appendix II).

### **Direct observation**

Oyesiku and Omitogun (1999) state that direct observation is the best means of data gathering as it reduces the chances of incorrect data being recorded. Deriving from the reconnaissance survey of the study area, direct observation including participant observation was used to locate the existing land use, transportation network, setbacks and open spaces. This formed the basis to update the base map. Drawings, sketches, and illustrations of observed attributes of the study area were generated, while still and motion photographs were taken as visual evidence to depict the existing situation in the study area, complementing other primary data collected in the field.

### **Physical linear measurement**

Physical linear measurement was crucial in determining plot sizes (where necessary), percentage coverage of plot development, setbacks of buildings, drainage channels, utility lines and water bodies, as well as measurement of encroached spaces in areas selected for the field survey. The width of roads, drainage channels and power lines were physically measured to aid the completion of questionnaire as well as the updating of the base map. Field supervisors and assistants were equipped with identity tags, measurement tapes, copies of introduction and permission letter to access the selected districts in the community, and were instructed to abide by ethical rules and seek the consent of respondents or property owners before embarking on this exercise.

### **Key-informant interviews**

The interview technique fostered face-to-face interaction between the respondent and the researcher. The consultation was guided by a predetermined interview schedule, which contained a list of salient issues not covered by the questionnaire and needed clarification by the

interviewee. The researcher established a rapport within enabling environment by assuring the respondents of confidentiality, voluntary participation, freewill and anonymity. Key officials at relevant ministries at state and federal levels, departments, parastatals, task forces, and local government, as well as special assistants to the Executive Governor in Ekiti State were selected for interviews and discussions. Their opinions were sought on the availability, effectiveness and institutional arrangement on planning laws for development control, setbacks and open spaces provision, maintenance and the menace of encroachment in the city; efficiency of government efforts in reclaiming setbacks and open spaces in the cities; and a wide range of issues such as contained in the interview guide in Appendix III

### **Focus group discussion**

According to Ajayi and Adedire (2013), a focus group brings together “a formally constituted structured group of people from similar backgrounds or experiences to discuss a specific topic of interest to the researcher” to provide insight on how a group or stakeholders think about an issue in a particular community. Dawson, Manderson and Tallo (1992) emphasize that, focus group discussions shed light not only on a wide range of opinions and ideas, but expose “the inconsistencies and variations that exist in a particular community in terms of beliefs, experiences and practices”. Stakeholders for focus group discussion were special assistants to the executive governor on environment, planning and development matters, key officials of relevant ministries, departments, parastatals, task forces, local government; district chiefs, politicians, chairmen of community development, markets, transport and landlords’ associations; religious organisations, trade union, artisan and youth leaders. Individuals were selected within the group to take part in the discussion, taking cognizance of balanced gender composition, knowledge of the area, and understanding of the matters under discussion.

Issues pertaining to the research such as land development, space utilization, role of government and public participation in the city planning, among others as detailed in Appendix IV, were openly discussed while discussants freely expressed their opinions, even as the confidentiality of information and voluntary participation of individual respondent were maintained. This exercise proved highly efficacious as people that share common problems and experience were brought together to discuss the issues. The forum brought different chains of opinions and reactions as

different people had diverse perception of the same issue, and generated divergent views and robust ideas, whence the way forward was charted.

### **Pilot Survey and Data Collection Procedures**

In order to enhance the quality of the research and achieve the desired results, field supervisors and assistants were recruited and trained to administer the questionnaire. The duly oriented and fully equipped field supervisors were instructed to offer necessary assistance and monitor the field assistants during the survey, and it was emphasized that the prevailing ethical parameters were strictly adhered to. Prior to the administration of the questionnaire, a reconnaissance study was carried out in the communities within the study areas. The pilot survey enabled those involved in the study to carry out initial first-hand investigations and familiarize themselves with the study area. With the aid of introduction, permission and informed consent letters, the extent of each of the delineated districts was determined, following which the questionnaire was tested. This initial pilot survey fostered mutual understanding, eliminated fear, reposed confidence, reduced apathy and developed cooperation in the communities. It also enabled familiarity between the respondents and the researcher, and paved way for the satisfactory collection of reliable data in the subsequent field study. Having made the necessary adjustments, a specific number of questionnaires were allocated to be administered street by street for the full-blown survey of the respondents selected by the multi-state sampling process. In order to strengthen the information base, preference was given to property owners or household heads in picking out respondents in each of the selected houses.

#### **2.3.2 Secondary Sources**

The primary data were backed up by secondary data in the form of published and unpublished work, research reports, journals, conference proceedings, sourced from libraries and the Internet. These included a copy of the Ekiti State Urban and Regional Planning and Development Law No.3 of 2011 obtained from Ekiti State Ministry of Lands, Housing and Urban Development, and data on the state of the environment in Ado-Ekiti collected from Ekiti State Ministry of Environment. Other indispensable sources of secondary information were the Urban and Regional Planning Office which provided documents on houses contravening setback regulations and those marked for demolition, and the data on existing and proposed open spaces

development provided by the Ado-Ekiti Beautification Project Office in the city. Some vital information on the historical evolution and socio-economic attributes of the city was derived from Ado-Ekiti Local Government Secretariat, Ado-Ekiti. Some maps and professional mapping assistance were obtained from the Department of Survey and Geo-informatics, Federal Polytechnic, Ado-Ekiti, Department of Survey and Geo-informatics, Yaba College of Technology, Yaba, Lagos, the G.I.S. Laboratory, Department of Geography, University of Lagos, Akoka, Lagos, and the School of Built Environment and Development Studies, University of Kwa-Zulu Natal, Howard Campus, Durban. Secondary data was used throughout the duration of the study, while the literature review and data emanating from the study culminate to secondary sources as depicted in Figure 2.1 showing the sequence of the research methodology.

#### **2.4 Key approach to challenges of community access, information gathering and data collection**

Some challenges were encountered during the course of information and data gathering for the study. Firstly, prospective respondents comprising those residing in the areas where buildings and illegal structures are marked for demolition, or are being demolished to reclaim encroached setbacks and open spaces were expected to be antagonistic. To address this issue, community access was sought through heads of associations, traditional chiefs, and political leaders, who were contacted to sensitize residents prior to the survey. A gatekeepers' permission was sought and obtained from all the councilors in the 13 wards in Ado-Ekiti through the Chairman, Ado-Ekiti Local Government (see Appendix VI). Moreover, some of the field assistants and supervisors were recruited from selected districts to create a sense of belonging and gain acceptance among residents.

Secondly, the state security apparatus providing cover for the Task Force on demolition appears to be distrustful and skeptical about studies of this nature. They are given to resisting the use of cameras and electronic recorders, and block access to officers that could provide useful information. Their phobia centers on suspicion of espionage that could portray the exercise in bad light through negative reportage. To allay the fear, the researcher sought assistance from the Ministry of Lands, Housing and Urban Development officials who enlightened the security

personnel and aided their understanding of the research project. Written permissions were also issued by the Ministry, as well Davcrown International Services Ltd, a security outfit in the city, in support the study (see Appendix VI). Thereafter, government officials and security operatives were cooperative and allowed the smooth conduct of the field exercise.

The researcher applied basic research ethics principles such as voluntary participation, confidentiality of information and guarantee of anonymity to ensure that the rights of respondents were not infringed upon in any form but adequately protected in relation to the nature of this research, as contained in the informed consent letter (see Appendix V), and also clearly stated the introductory part of the questionnaire (see Appendix II). The people were assured of the benefits of the research such as the enhancement of infrastructural facilities, improvement of the quality of environment, and upgrading the standard of living in the community and the capital city. This explanation generated great community interest in the research project and facilitated a successful data collection exercise.

Finally, where there were no recently updated maps in the study area, manually updated and digitized old maps were utilized. To circumvent this challenge, the GIS package was used to source base maps of the study area from aerial photographs and images accessed via the internet using remote sensing to trace the growth and spread of the city.

## **2.5 Methods of Data Analysis and Presentation**

Data reproduction and extracts from secondary sources were presented in tabular, graphical and written forms to build up literature for the identification of research gaps that were filled during this study. Secondary data was used throughout the study to establish facts and findings from earlier empirical research as depicted in Figure 2.1.

The data generated by the survey were collated, coded and processed using the Statistical Package for the Social Sciences (SPSS), enabling the presentation of the processed data in cross tabulations, ideographs and pictographs. Descriptive statistical tools such as tables, charts, frequency distribution, and measure of central tendency were used to analyse the data. Illustrations, sketches and photographs were indispensable in depicting some phenomena, chance

occurrences, information and observations made before, during, and after the study. These are presented in subsequent chapters.

The data analysis and interpretation provided the basis for recommendations to reclaim and green setbacks and open spaces in the study area. This is geared towards ensuring aesthetically pleasant spaces, inclusive green places and a pleasurable pollution-free environment for sustainable urban landscape development in Ado-Ekiti.

## CHAPTER THREE

### THEORETICAL AND CONCEPTUAL FRAMEWORK

---

#### 3.0 Introduction

This chapter presents the issues, relevant theories, conceptual framework, and ideological principles, which underpinned this research study.

#### 3.1 Theoretical background

The relevant theories that back up this study are those of the man-environment interaction, and the central place.

The environment is the indispensable medium for human activities. In the man-environment interaction, the environment affects man, and man interacts with the environment and makes an impact on it. The man-environment interaction identifies five stages of human development; each typifies the degree of man's influence on the environment, leading to changes of different magnitude in both time and in space. These are the concepts of environmental determinism and possibilism, Malthusian theory, concept of sin, and the theory of the end of the world.

The first stage of human development is *Hominid* or the early man from creation. The concept of Environmental Determinism, which conveyed the idea that whatever man does, the environment is overarching as it dictates all his social, political, psychological, cultural and economic activities, aids the understanding of the man-environment interaction at this stage. The second stage of human development, *Homo sapiens*, was wiser and started to exert changes on the environment in his strive to attain the four basic needs of life. As such, he became dangerous to it. The concept of Possibilism, which conveyed the idea that man, having become wiser, is capable of anything, aids the understanding of the man-environment interaction at this stage. The third stage of human development, *Homo economicus* or the economic man, always strives to make use of available resources and opportunity to maximise profit. Economic theories fall under *Homo economicus*. The Malthusian Theory raised alarm about the prudent management of resources as the rate of population increase far exceeds the rate of production. If this remains unchecked, the population will check itself by natural and anthropogenic means. *Homo vandulus*,

the fourth stage of human development is perceived as the destroyer with a strong tendency to destroy the global environment by contraventions, encroachments, pollution, waste, wars, etc. The concept of Sin applies, as he is a spoiler and an apostle of doom, committing environmental sin on a daily basis.

The Theory of the End of the World sensitizes people on how to carefully use the world and its resources, curtail pollution, cease spending on weapons of war, and end all inhumanity of man against man, rather than putting an abrupt end to the world. As *Hominids* evolved through *H.sapiens*, *H.economicus* and advanced to *H.vandalus*, rapid socio-economic and technological advancements incapacitated traditional norms and generated a need for intervention with regard to the emerging environmental risks associated with human action, inaction or interaction with nature as well as the risks naturally occurring within the global environment. This aims to reduce the negative impact of urbanization for sustainable development in cities and the surrounding regions (Ojo-Fajuru, 2006a).

From the foregoing, it can be safely postulated that the earthly environment was divinely pure, and totally unspoiled before the onset of the four stages of human development. The book of Genesis presents the biblical backing; God created everything in the universe and saw that it was good. In effect, God bequeathed a good environment to man whom He also gave dominion over earth's creatures and other natural resources. According to Okorodudu-Fubara (1998), man is part of the network of natural components which make up the planetary ecosystem. Since science and history agree that before the advent of man, the environment already existed, by extension, it preceded all human technological and scientific development.

Studies have corroborated this assertion and further revealed that prior to the industrial and agrarian revolutions about 200 years ago, the various constituents of the environment were in relatively stable equilibrium. Since then, man's actions have brought about various changes with diverse effects on the earth's physical, social, economic and political resources. These include nuclear and fossil fueled power stations, deep open cast coal mining operations, oil and gas exploration projects, airports and seaports, tunnels, barrages, roads, universities, major

manufacturing plants, and hi-tech development projects (Agwu et al, 2000). All these have adverse impact on the environment in rural, urban areas and natural open spaces.

The gradual modification of the natural and artificial components of the planetary ecosystem by anthropogenic means to suit man's purpose, which may be beneficial or harmful to man or the totality of the environment, is tantamount to environmental change. The magnitude of ecological change in the world today is so high that it has become an issue for serious concern among planners, researchers and policy makers, among others, who constantly search for ways to ensure proper use, regular monitoring, and appropriate auditing of the environment. The man-environment interaction theory is therefore relevant to this study, which seeks to reverse the harmful effects of man on the environment in the form of encroachment on setbacks and open spaces, and utilise these spaces for sustainable greening. This would re-establish the primordial bond between man and the natural environment in Ado-Ekiti, the capital city of Ekiti State.

Deriving from observed economic interaction between cities and their surrounding districts, the central place theory emanated from urban geography as a spatial theory to justify the rationale for the size, patterns of location, and number of these human settlements all over the world (Christaller, 1933, Baskin, 1966). Having tested the efficacy of the theory in Southern Germany, Christaller (1933) posited that people live together in cities to access common goods and services. Hence the central place primarily exists to provide goods and services to its surrounding population, thereby portraying the city as the ideal center of distribution. The theory also sets the yardstick for the study of the historical development of towns and cities as well as the reasons for their prevailing patterns of distribution globally (Briney, 2015).

The theory matched the issue of threshold population with the dichotomy of goods into low-order and high-order categories, with the inference that since low-order goods are purchased regularly, small businesses survive in small towns as people will buy such items frequently at the closest location rather than going to the city. Contrariwise, high-order goods require a large threshold since they are not purchased regularly; hence many outlets selling these items cannot survive in sparsely populated areas. They are thus located in densely populated cities that offer such goods and services to the larger population in the neighboring hinterland (Briney, 2015).

Five sizes of communities are recognised within the realm of the central place system with the rank order: the hamlets (first-order centers), villages (second-order centers), towns (third-order centers), cities (fourth-order centers), and regional capitals (fifth-order centers). The hamlet and the village are rural communities, while the others are urban centers or agglomerations that provide highest order goods for a larger hinterland. The theory projects a 'hexagonal segmentation of space' whereby one higher-order settlement, such as a city, is surrounded in a regular geometric pattern by six lower-order towns (Keßler, c.2015). Christaller assumed a flat hinterland without physical impediment to mobility, and people will always purchase goods from the nearest place that offers such goods; and that whenever there is high demand for a certain good, it will be offered in close proximity to the population, and conversely, the availability of the good diminishes when demand decreases (Briney, 2015). This perception appears to be perfect but seems an unrealistic generalization that excludes peoples' behavioural pattern both in time and space. Eventually Losch (1954) demystified the rigid economic standpoint of the theory by amending it with due consideration for consumer welfare.

However, it is significant that the central place theory rests on three principles or orders. Firstly, the marketing principle represented as  $K=3$  (where  $K$  is a constant) depicts that the market areas at a certain level of the central place hierarchy are three times bigger than the next lowest one. The different levels progress in multiples of three, which implies that as one moves through the order of places the number of the next level increases threefold. Secondly, the transportation principle symbolized as  $K=4$  indicates that areas in the central place hierarchy are four times bigger than the area in the next lowest order. The third is the administrative principle denoted by  $K=7$  whereby the variation between the lowest orders and highest orders increases by a multiplier of seven in which the highest order trade area totally envelopes that of the lowest order; an indication that markets serve larger areas (Briney, 2015).

It is imperative that the central place location, ranking order and threshold of Ado-Ekiti in Ekiti State justify the location of outlets for both low-order and high-order goods. The resultant marketing, transportation and administrative principles extend the influence and tentacles of the capital city into the larger hinterland and thereby stimulate rampant immigration, high intensity of spatial interaction, physical development, and increasing spatial demand for human activities.

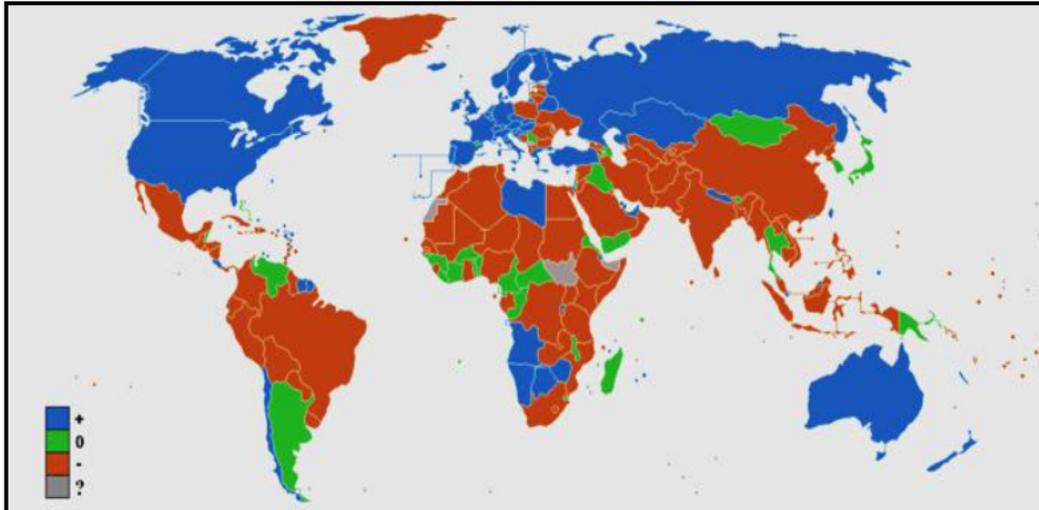
These trends of urbanisation exert pressure on inelastic urban land resources and gives rise to unbridled space contestation on setbacks around buildings, and along transportation corridors, water bodies, power transmission lines, and other open spaces in the city. It is this phenomenon that this study sets out to analyse and to make recommendations for its reversal.

### **3.2 Conceptual framework**

Some conceptual issues are relevant within the context of this study, which centered on reclaiming encroached setbacks to establish efficient green spaces towards the attainment of sustainable urban landscape in Ado-Ekiti. Such concepts discussed are urbanization, urban land use planning, urban decay, setbacks and air spaces, landscape planning and landscape architecture, urban open space, new urbanism and new pedestrianism. Others include resilient city, green city, reclamation, placemaking, clean city, liveability, inclusion, sustainable city and sustainable development.

Urbanization is a global phenomenon that refers to the agglomeration of people in the urban areas. It is a continuous process initiated by many dynamic interactions, increasing the number of people living in urban centres as compared to the rural areas. It is mainly caused by urban growth attributable to natural population increase, reclassification of urban and rural systems, rural-urban migration, and the recent phenomenon of migration through conflict shown in Figure 3.1 (Boundless, 2016a).

Largely induced by socio-economic and environmental factors at local and global levels, urbanization is the fallout from modernisation and industrialisation, which, in turn, portends social, economic and environmental impacts. Urbanization causes increase in prices of commodities and properties values, which instigates gentrification whereby wealthier newcomers



Source: Boundless, 2016 "Migration." *Boundless Sociology*, Boundless, Online. Available: <https://www.boundless.com/sociology/textbooks/boundless-sociology-textbook/population-and-urbanization-17/population-dynamics-121/migration-685-10229/>

Figure 3.1 Net migration rates by country. Social, economic, and environmental conditions (such as unemployment, drought, or conflict) can drive large numbers of people to migrate across national borders. Positive migration rates are indicated in blue; negative migration rates in orange; stable in green; and no data in gray.

displace original residents who are compelled to move to cheaper but less-desirable neighbourhoods. Environmental consequences of urbanisation arise whereby depleted vegetation and bare cityscape induce the 'heat island' effects, capable of raising city temperatures by 2 to 10 degrees Fahrenheit. It has been observed recently that improvement in transportation infrastructure and other social factors like racism have accelerated current trends of suburbanisation and counterurbanisation which entails the movement of people away from cities.

Urbanisation is responsible for the physical growth of urban areas through rural flight that lead to eventual suburban concentration and sprawl (Boundless, 2016a). Global populations have urbanized rapidly in the last century to the extent that the percentage of people that lived in urban areas rose from 13% in 1900 to 29% 1950. Figure 3.2 indicates that equilibrium of 50:50 worlds rural-urban population was reached around 2006. In 2015, urban population (shown in red dotted lines) increased to 55.7% while rural population nosedived on the graph. It has been projected that the proportion of people living in cities may reach 60% by 2030 (Boundless, 2016a).

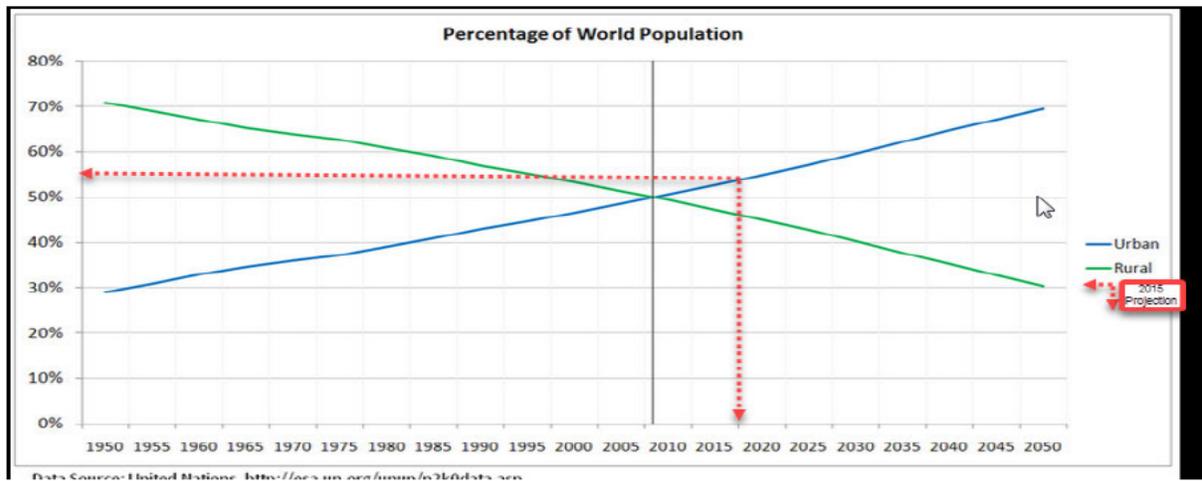


Figure 3. 2: Trend of rural and urban population revealing that in recent times, the world’s population has become more urban than rural.

In developing countries, the rate of urbanization is exceedingly high. From 1970 to 1995, urbanization in Africa increased by 15%, second only to Latin America (Olatubara, 2004). According to a World Bank report, some African cities are growing at a rate of 10% a year (UNCHS-Habitat, 2004), the highest rates ever recorded worldwide. Curiously, a high urbanization rate is not commensurate with slow economic development, a phenomenon Aledare (2008) termed socio-economically handicapped urbanization.

The development of the world is most noticeable in cities, which drive socio-economic development. Adebayo and Adebayo (2000) confirm the escalation of urbanisation and population growth in South African cities at the onset of democratization in 1994. The World Bank estimates that in developing countries, as much as 80% of future economic growth will occur in towns and cities, which are reaching unprecedented sizes (Adebayo, 2001). Rapid urbanization brings about several problems for urban centers such as overstretched resources, overloaded facilities, a quantitative and qualitative housing deficiency, homelessness, unemployment, rising poverty levels, livelihood and human survival challenges, contravention and encroachment, the creation of slums, traffic congestion, pollution in all its ramifications, vegetation subtraction and attendant ‘heat islands’ that portend urban discomfort and climate change. The concept of urbanization is therefore central to this study as it explains the phenomena that led to increased demand for land resources, the eventual build-up of setbacks

and open spaces, and the bare cityscape devoid of adequate vegetation in Ado-Ekiti. This seems to justify the rationale behind the State Government seeking to improve environmental quality by attempting to reclaim open spaces and setbacks for the establishment of greenery in the capital city.

Land use planning considers what land resources are available and what they are suitable for, in both the short and longer terms (CSIR, 2005). Theories, concepts and models that seek to explain the internal spatial structure of individual cities have been propounded by Burgess (1927), Hoyt (1939), Harris and Ullman (1945), Gutternberg (1960), and Weber (1962), among others. Using the systems approach in the regional planning context, Christaller (1933) developed the Central Place Theory to describe and explain the location, size and spacing of cities or group of settlements within a regional setting. The town functions as a central place and exhibits some central functions that extend over a larger region in which other smaller communities of lesser functions exist (Berry, 1967; Pred, 1967). In the regional context, the relative importance of the town is determined by the degree of functions it renders based on the level of available services. The town is therefore regarded as the centre of development, which could be the result of intensified government and private sector investments as in the case of capital cities.

In essence, the land use pattern dictates and influences the extent of interaction in a particular area. It is obvious that the central role of Ado-Ekiti within the regional setting has contributed to the magnitude of the agglomeration of human activities in this growth center. The intensity of spatial interaction, coupled with rapid urbanization, exerted pressure on land resources, manifested in the wanton encroachment on setbacks and contestation of open spaces in the city; an anomaly which this study seeks to investigate and redress.

Urban decay has been described as the declining situation of cities and towns under three main categories, namely, physical, economic, and social. The physical aspect of decay has to do with missing sanitation facilities, a lack of basic maintenance, the presence of trash and rubbish and over-stretched community facilities (Chapin, 1957). Urban decay in its widest context denotes dereliction of all sorts that tends to jeopardize the optimal functioning of the entire city or town. It is synonymous with urban blight or urban obsolescence and has to do with a decline and

deterioration in all that urbanism entails (Ogunnowo, 2005). The city can be likened to the human cycle from its inception through growth to maturity, old age and death. The first and second stages of city development are the growth stage and maturity stage, respectively, while the third stage is the decay-decline stage. If nothing positive is done at the third stage, disorderliness and chaos becomes clearly noticeable in the urban fabric. This could degenerate to urban slums and squalor, which connote a poor quality and substandard housing environment (Ojo-Fajuru, 2006b). As urban areas expand, so does the extent of urban environmental impacts which manifest in the form of overcrowding, housing shortages, contraventions and encroachments, waste generation and management problems, poor sanitation, diverse pollution problems, slum development, and general environmental deterioration. This is evident in the tendency to build up open spaces and setbacks to buildings, roads, drainage channels, streams, rivers, and high-tension power lines in Ado-Ekiti. This study sought to reverse this aberration.

Setbacks are building restrictions imposed on property owners. Local governments create setbacks through ordinances and building codes, usually for reasons of public policy such as safety, privacy, and environmental protection. Setback regulations also bother on the issue of servitude for the provision of basic amenities, utilities, infrastructure and services, overhead or underground, such as drainage, sewers, sewerage, water mains, cables, manholes, pavements and sidewalks. Perkins Township (2017) disseminates that in spatial planning, buildings and structures are provided setbacks when they are recessed at stipulated distances from transportation routes, utility lines, water bodies, conservation areas, and ecologically sensitive terrains. Appurtenances, outhouses and attachments to buildings, other associated engineering services and embellishment are duly controlled by juridical enactments to ensure safety and wellbeing in the living environment.

Setbacks are necessary to provide ample spaces between buildings, often referred to as the air space to ensure privacy and psychological satisfaction and as well prevent calamities such as the spread of fire outbreak. Adedeji and Fadamiro (2011) posit that within the urban residential neighbourhood, building setbacks, when properly provided, impact directly on the quality of open space around individual buildings and the landscape quality of the entire neighbourhood. In order

to promote healthy living in Nigeria, various building regulations and planning standards stipulate minimum setbacks for residential and other land uses.

In the interests of public safety the Building and Sub-division Regulations (Town and Country Planning Law, Cap. 123), OD.S.L.N. No. 14 of 1984, currently in use in Ekiti and Ondo States stipulate in Sections 28-34 and 39 that the minimum setback of any residential and commercial building or structure from the plot boundary along any road shall be 4.5 and 7.5 meters, respectively, while the setback for an industrial building is 9.0 meters (ODSG, 1984). It should be noted that some developments have not complied with this provision as a result of the widespread encroachment of illegal structures on setbacks and open spaces in the state capital, which this study sets out to address.

Landscape planning has been defined as the art or science of arranging land together with the spaces and objects upon it, for safe, efficient and pleasant human use. It can be described as man's manipulation of the outdoor scene to produce a different kind of landscape to suit his own uses, covering all his major activities ranging from managing natural forests for timber, clearing trees to grow crops, and building urban and industrial areas to laying out gardens round our houses. These either derive directly from the natural environment and its resources or depend upon man's management of it. To evaluate any landscape, we therefore need to understand both its present function and its origins in terms of man's activity (Ayorinde, 2004). The Earth is covered with varieties of landscapes such as ice caps dominating the Polar Regions, mountainous regions, extensive desert landscapes, islands and coastal regions, densely forested or wooded landscapes commonly found in the tropical rainforests, and arable terrains of the temperate and tropical landscapes. Other thematic categories in the landscape are cultural landscape, landscape ecology, landscape planning, landscape assessment and landscape design.

Landscape architecture involves the shaping of building sites and public spaces to create aesthetic environment that satisfy social and behavioral needs of the people. It hinges on methodical survey of prevailing circumstances and processes to proffer intervening strategies in attaining desirable social and physical environment (Jellicoe & Jellicoe, 1995). Javed (2013) points out that the duties of landscape architects centre around sustaining ecological balance

through the proportionate admixture of green and grey landscaping elements of diverse types, texture and colour in the design of structures and spaces of various dimensions in the urban, suburban and rural landscapes. The planning and installation of extensive and intensive roof gardens to ensure proper storm water management, effective evapo-transpiration cooling, innovative habitat creation, aesthetically appealing and sustainable buildings are the purview of the green roof designers (Miller, 2016). The concept of landscape planning and landscape architecture is germane to this study which seeks to utilise green landscaping technique to embellish reclaimed encroached setbacks and open spaces, and thereby redress the anomalies that threaten sustainable landscape development in the capital city of Ekiti State.

Urban open spaces, within the context of land use planning, are parts of the human settlement that are not built up but maintained as open areas or green spaces, and often used for squares, plazas, parks, gardens, or naturally or incidentally open spaces. The South Coast Urban Indicators Project (2012) contend that these vary from playing fields to carefully tendered environments and naturally occurring landscapes, which are commonly open to the public, but may be privately owned. Therefore, it is logical to regard open areas in towns and cities as urban open spaces, while the open areas outside urban limits, the likes of peri-urban open spaces including regional parks cannot be classified as such.

Urban open space is a term that is applicable to different types of open areas (Alfirevic & Simonovic-Alfirevic 2016). It is described as a ‘counterpart of development’ that constitutes a natural and cultural resource, such as open land and water body. It may be intentionally acquired or controlled by government for recreational, conservation and urban development purposes (Marilyn, 1975). In most cases, urban open spaces are synonymous to green spaces and public places. Cases abound of urban green spaces, though not publicly owned/regulated, and are still regarded as urban open spaces. Springgate (2008) cites examples of such spaces as neighbourhood/community parks and gardens, and institutional or corporate grounds, which offer ‘aesthetic and psychological relief’ from built-up areas.

Generally, the benefits of urban open spaces to citizens take three basic forms: recreation, ecology, and aesthetic value. Open spaces offer almost limitless active like exercising, and

passive recreational opportunities including merely spending time in the open space as a break from the hustle and bustle of the city environment. These spaces also constitute nature's reserves, providing pockets of habitat for flora and fauna, and thereby promoting biodiversity, and aesthetics in built up environments (Bureau of Municipal Research, 1971; Berry, 1976; Eysenbach, 2008; Ward-Thompson, 2013). The greenery of open spaces alternates 'gray infrastructure' and offers the perception of nature that is rarely available in urban environments (Takaue, c. 2001).

The value of urban open space can also be considered with regard to the specific functions it provides. The Bureau of Municipal Research (1971) lists these as the nature, urban design, economic, social retreat, and outdoor recreation functions. Eysenbach (2008) categorizes the values open space offers from a sociological viewpoint, listing: civic and social capital, cultural expression, economic development, education, green infrastructure, public health, recreation, and urban form. These studies identify aesthetic, recreation and ecology as the core benefits of urban open spaces that offer great values to urbanites.

The urban open space concept is central to this study which focuses on the reclamation of encroached setbacks and open spaces for city greening. The study aimed to use the urban open space system to improve aesthetic qualities and provide avenues for psychosomatic reprieve in the built-up city, and equally offer recreational opportunities, conserve the environment and guarantee sustainable landscape development in Ado-Ekiti, the capital of Ekiti State.

The new urbanism concept centers on the integration of the various components of modern life such as housing, workplace, shopping and recreation into compact, friendly neighborhoods linked by transit routes. The concept posits that developments should be pedestrian friendly. It advocates for a neighborhood size of not more than 400 meters from centre to edge and a layout that is interconnected by road networks. Furthermore, the urban design should consist of coherent blocks, fronted with building entrances instead of parking lots. There should be a mix of activities in proximity to each other and a spectrum of housing options in each neighborhood that enable interactions within close range of one's home.

The new urbanism concept advocates diversity in the population composition and land use in neighborhoods rather than being restricted to a class of people or limited to a particular type of usage or activity. Priority should be given to pedestrian movement in such communities endowed with acceptable standards of public spaces, community institutions, infrastructure and facilities. The city shape should be properly configured to encourage walking. Many daily activities should take place in facilities provide within walkable distance, thereby according due consideration to the young and the aged who are not mobile. Pedestrian-only streets are purposely introduced into a network of interconnecting roads to discourage motorized traffic and promote walking and the conservation of energy in a cleaner and emission-free environment. The basic theory behind most of these recommendations is that when facilities and services are located within close proximity of homes, they will be chosen as destinations for activities. Combined with a pleasant and interesting environment for pedestrians, and accessible transit facilities, the application of the concept would reduce the use of cars to the benefit of pedestrians in the capital city of Ekiti State.

New Pedestrianism is an idealistic variation of New Urbanism in urban planning theory. Arth (2008) opines that New Pedestrianism provides additional ecological options and beneficiary pedestrian features than the New Urbanism. The concept addresses the shortcomings associated with New Urbanism and attempts to solve various social; health, energy, economic, aesthetic and environmental problems with a special focus on reducing the role of the automobile (Hall, 2013). Settlements are designed and developed with little or no access for automobiles but are connected by pedestrian lanes. New Pedestrianism seeks to reduce the negative impact of the automobile by replacing front streets and roads with tree lined lanes for pedestrians, cyclist and wheelchairs (Sullivan, 2006; Arth, 2008; Hall, 2013). The study area is noted for its clumsy nature due to its huge population. This contemporary planning concept would address the chaotic nature of Ado-Ekiti by promoting pedestrian-only streets and holistic pedestrian neighborhoods devoid of automobiles. The concept is thus relevant in the management of the core residential areas in the study area. Areas that lack vehicular access would be developed or redeveloped within the context of New Pedestrianism.

Urban resilience has been defined as the capability to prepare for, respond to, and recover from significant multi-hazard threats with minimum damage to the public safety and health, economy, and security (Wilbanks, 2007) of a given urban area. Climate change, natural disasters and terrorism are the three distinct threats that dominate contemporary academic discussion on urban resilience. Prasad et al (2009) posit that the concept of resilience is central to the understanding of urban areas' vulnerability, whereby a resilient community is viewed as one that maintains an up-to-date database to understand potential hazards, and is highly knowledgeable in the preparation and implementation of its future growth and improvement plans. A resilient community also pulls together the required financial resources from a variety of sources for climate change mitigation and adaptation initiatives as well as for response and reconstruction in times of natural disasters, especially the earthquakes, floods, and storm surges that are endemic in disaster prone regions.

A resilient city is one that is able to sustain itself through its systems by dealing with issues and events that threaten, damage, or attempt to destroy it. The three distinctive attributes of resilience in human-ecological systems are the amount of disturbance a society can absorb and still remain within the domain of attraction; the degree to which the society is capable of self-organization or adjustment; and the degree to which it can build and increase its capacity for learning and adaptation. In essence, a resilient city must have strong infrastructure, policy, and human resource response capacities and capabilities to avert the potential impacts of natural hazards (Prasad et al, 2009). The concept of the resilient city is indispensable to this study. It promotes an understanding of urban areas' vulnerability to hazards and strengthens a city's ability to retain and sustain its physical, socio-economic and environmental attributes and carrying capacities against hazards and abuse. This is especially pertinent in Ado-Ekiti where uninhibited natural verdure destruction and wanton encroachment on setbacks and open spaces have had devastating effects on human-ecological systems.

Green city development as a strategy that protects and restores the ecology within urban communities is hinged on the green city concept. It combines urbanism and nature to create healthy, civilizing and enriching places. It is a living area governed more by nature than legislation; a sustainable human settlement where inclusive governance, self-dependence and

natural equilibrium reign supreme. Creating sustainable green spaces can begin with community parks, as they offer a host of ways to reduce the environmental impact on cities. The restoration and preservation of open spaces is another target for sustainable green initiatives, as it seeks to incorporate greenery into private outdoor spaces. Some urban neighborhoods with their asphalt roads, concrete sidewalks, and concrete-block property boundaries, need more greenery in their street-level aesthetics. In addition, sustainability in urban green space is not only desirable, but profitable because it creates a means of livelihood in terms of employment and trade. Sustainable green initiatives aim to incorporate greening into private outdoor spaces. The presence and use of urban aquatic areas (streams, swamps and beaches) that are often neglected or manipulated beyond recognition is another aspect of greening. Protection and restoration of such aquatic systems can revitalize neighborhoods and commercial areas (Williams, 2000).

The green city concept is relevant to the management of urban landscape development in the study area as it harmonizes the setbacks and open spaces reclamation exercise with the greening and beautification programme, and efforts to abate the effects of climate change in Ado-Ekiti. Green city initiatives will also ensure that the state capital retains abundant naturalness, which enhances city aesthetics and preserves the ecological system that makes the city liveable. A lush green landscape will also reduce glare and the intensity of the high temperatures in this tropical climate, thereby ensuring an ecological balance and urban comfort.

Reclamation is an act of reclaiming or being reclaimed; to reclaim means to win, take back (The Concise Oxford Dictionary, n.d.), or salvage something that has been usurped, lost, misplaced, damaged, wasted or rendered useless. Reclamation is applicable to land, mines, rivers and water resources, and has been carried out in all parts of the world. The key elements that lead to reclamation differ from place to place just as the resultant effects vary in time and space. Classical examples in the West include much of the urbanized area adjacent to San Francisco Bay in California, USA; the Toronto Islands, Leslie Street Spit, and the waterfront in Toronto, Canada; the Fens in Eastern England; the Barceloneta quartier, Barcelona, Spain; large portions of Saint Petersburg, Russia; the Hassan II Mosque in Morocco, and the Cape Town foreshore. Others in the Far East are Chinese Haikou Bay, Hainan Province, extension of the Haidian Island to the west, creation of new marina off Haikou City coast , and the southern cities of Shenzhen;

25% of Hong Kong Island and Nagoya Centrair Airport, Japan; Beirut Central District, Lebanon; and the city of Mumbai, India(Vianello, n.d.). The key issue that constituted the major drive for reclamation in the cases cited was the creation of new land to satisfy the needs of human activities, most especially in places with high population density and scarcity of land, for urban habitation, agriculture and industry.

The option of reclamation came to the fore in Abuja, FCT, Nigeria in 2003, following gross abuse of ‘green areas’ and the distortion of the Master Plan of the City, as well as the need to embark on a serious effort to restore the encroached open space facilities to conform with the provisions of the Master Plan. The reclamation exercise, which became an integral part of the larger restoration of the Abuja Master Plan programme, was controversial as it involved extensive destruction of property, albeit illegal. These were mostly shops, residential development and squatters that had invaded road corridors and other green open spaces. The Parks and Recreation Department repossessed all the recovered areas by landscaping with fences, trees, shrubs and ornamental flowers. The exercise boosted the government’s beautification drive and forestalled further abuse of public spaces in the nation’s purpose-built capital. The restoration exercise, which continued until the middle of 2007, succeeded largely in restoring some of the ‘greens’ to their original uses, i.e., for recreational purposes in Abuja.

In their case study of the Akure urban core, Fadamiro and Atolagbe (2005) point to inadequacies in providing, maintaining and managing open spaces, and recommend *inter alia* the reclamation of deteriorating unused open spaces created by regulations for setbacks and airspaces. They advocated the conversion of these spaces with soft and hard landscaping elements to attractive circulation pavements, uninterrupted walkways, cycling and pedestrian paths, playgrounds, parks, plazas and communal meeting places. This study seeks to key into this policy directive, and project it further by redressing the quantitative and qualitative deficiencies, misuse, abuse and encroachment on open spaces and setbacks by reclaiming these spaces for the establishment of greenery to promote the socio-cultural, economic and environmental attributes that make Ado-Ekiti a great place.

Placemaking is a multi-faceted approach that uses the local community's assets, inspiration and potential to plan, design and manage public spaces. It is not only a process but a philosophy aimed at creating good public spaces that promote people's health, happiness, and wellbeing. The Project for Public Spaces (PPS, 2014) describes placemaking as a peaceful movement where public spaces are the heart of every human community. It employs a transformative approach to motivate people to create and improve their public places, thereby reinforcing the relationship between people and their communal working, living and relaxation places. The organization further presents placemaking as:

...how we collectively shape our public realm to maximize shared value. Rooted in community-based participation, Placemaking involves the planning, design, management and programming of public spaces. More than just creating better urban design of public spaces, Placemaking facilitates creative patterns of activities and connections (cultural, economic, social, [and] ecological) that define a place and support its ongoing evolution. Place making is how people are more collectively and intentionally shaping our world, and our future on this planet. (PPS 2014, p.2)

Placemaking Chicago/Project Partners (2008) explains that although 'spaces' and 'places' appear to be similar words, they convey different meanings, and the dichotomy lies in the fact that while a space is a physical description of a piece of land, a 'place' suggests a feeling of emotional attachment to the land.

The protagonists of the placemaking concept are Jane Jacobs and William Holly Whyte, both creative thinkers, who initiated the movement through their futuristic writing in the 1960s, which offered pioneering ideas about designing cities that accommodate people, rather than just cars and shopping centers. The significance of lively neighborhoods and attractive public spaces formed the main thrust of their work. Jacobs advocated for citizen ownership of streets by inculcating the widely accepted idea of 'eyes on the street', while Whyte identified the crucial ingredients required to create social life in public spaces. By the mid-1970s, the Project for Public Spaces constituted a resource center that championed the advancement of the placemaking movement, and consistently advocated that a "collaborative community process that pays attention to issues on the small scale is the best approach in creating and revitalizing public spaces" (PPS, 2014). Thereafter, placemaking as a term started to gain wide acceptance among planners, architects and landscape architects to describe the process of creating

pleasurable or interesting squares, plazas, parks, streets and waterfronts that offer strong attraction and also act as structuring devices.

However, the central tenet of placemaking is still misconstrued, misused, or abandoned. It was declared in a study that:

[w]e have theories, specialisms, regulations, exhortations, demonstration projects. We have planners. We have highway engineers. We have mixed use, mixed tenure, architecture, community architecture, urban design, [and] neighbourhood strategy. But what seems to have happened is that we have simply lost the art of placemaking; or, put another way, we have lost the simple art of placemaking. We are good at putting up buildings but we are bad at making places. Hunt (2001, p. 1)

The Project for Public Spaces questions why creativity overshadows the values of cultural centers in cities nowadays: “why do our cultural centers so often turn inward, away from the street, onto an internal space that is only nominally for gathering, and is mainly used for passing through?” (PPS, 2012) It adds that placemaking cannot be equated with “constructing a building, designing a plaza, or developing a commercial zone”, but can be authentically likened with “when people enjoy a place for its special social and physical attributes, and when they are allowed to influence decision-making about that space” (PPS, 2014). The PPS identified 11 principles that can be applied to transform public spaces into “community places” (Placemaking Chicago/Project Partners, 2008).

Having concurred and described the concept of placemaking as an “innovative participatory engagement tool” (SAPI, 2014), Ojo-Fajuru and Adebayo (2014) adopted it as the linchpin of their study aimed at synthesizing green landscaping, street furnishing, and citizen participation techniques to transform existing, reclaimed and newly established public spaces in Ado-Ekiti into pleasurable urban places, making it more attractive, liveable and economically viable for the day-to-day activities of residents and visitors. The concept of placemaking is vital to the transformation of urban landscapes into green and great places in Ado-Ekiti, which this study set out to achieve.

The concept of clean cities can be traced to the recent United Nations programme established to examine the level of emissions associated with urban human activities and calculate per capita

emissions. These are measured by the values attached to the variables and sub-variables associated with the urban activities listed in the UN draft plan. The 25 identified activities include transportation, waste management, and energy consumption as they impact on day-to-day life in the urban environment (GlobalResourcesNews.com, 2014). The notion is that the more efficient these activities are, the more favourable their measurement will be, and the cleaner the city tends to be, with little or no adverse impact on the environment.

A vivid perception of a clean city, likened to an almost ideal city, is one that has:

readily available and decent housing at low cost; functional basic services and infrastructural facilities; no smoke or pollution (air, land and water), no electricity generator streets or avenues, no filth, no stench; beautiful streets, green frontages, green wedges, hanging gardens, beautiful park, neat bus stop shelters, organised loading and off-loading areas (for bicycles, motorcycles, tricycles, taxis, mini buses, lorries and trailers), efficient and functional public toilets/comfort stations, litter and waste bins, cleared drains and canals, as well as adequate, standard, functional, and interconnected network of roads and pedestrian walkways that are beautifully lit at night...(Wahab & Falola, 2014, p. 8.)

It is evident that green and greenery are important components of the clean city agenda. In fact, an ideal clean city could also be referred to as a green city. In the developed world such as in the USA, the clean city concept is used to reduce the relative consumption and use of hydrocarbon over a certain period of time. It is a voluntary programme devised by the US Department of Energy (DoE) to sensitize citizens to the need to reduce the nation's dependence on foreign petroleum products, by exploring alternative sources to gasoline or diesel fuels, and in so doing, reduce atmospheric pollution, and improve local air quality (Sridhar, 2014).

According to Forbes quoted in Sridhar (2014), while as many as 23 clean cities such as Freiburg, Germany; Oslo, Norway; Helsinki, Finland; Minneapolis, USA; and Kobe, Japan are located in the Northern Hemisphere, only two are found in the Southern Hemisphere (Auckland and Wellington in New Zealand). Furthermore, the north of the world is cleaner than the south, and 13 countries have clean cities. Clean cities are democratic and industrialized, and countries with clean cities have considerable purchasing power. According to a World Bank assessment, all clean countries except New Zealand are very rich, indicating that the level of affluence is paramount in making the clean country list. This is more so in that excellent infrastructure, good planning, adequate sanitation, energy production and efficiency, as well as waste reduction, reuse

and recycling are the major parameters considered for a city to be regarded as clean. Becoming a clean city is thus highly challenging; hence this study seeks to achieve this goal through greening setbacks and open spaces to provide green growth, green infrastructure and space efficiency in the capital city of Ado-Ekiti in Ekiti State.

The word 'liveable' denotes a place fit to live in. It is synonymous with habitable and comfortable (Oxford Advanced Learner's Dictionary, 2000; Random House Kernerman Webster's College Dictionary, 2010). Urban liveability therefore connotes those qualities in the physical environment of the urban area which tend to induce a feeling of mental, physical and social well-being with regard to the extent to which citizens' fundamental day-to-day needs and wants are met.

However, as a term, 'liveability' is not easily defined. While some see it as naturally linked to physical amenities such as parks and green space; others believe it is attached to cultural offerings, career opportunities, economic dynamism, or some degree of reasonable safety within which to raise a family. By and large, liveability is central to the establishment of a sustainable community, if for no other reason than if it is not present people will not stay in the community (Ling et al, 2006). Where liveability is linked to sustainability and infrastructure issues, it is normally an alternative development model to the expansion of sprawling suburbs with low population and service densities, where infrastructure provision is costly in ecological, economic, and social terms (Kunstler, 1993). While there are many definitions of liveability, it forms part of the sustainability equation. The City of Vancouver in Canada is frequently described as one of the most liveable cities in the world (Ling et al, 2006).

The importance of attaining a desirable level of liveability in cities is underscored by the World Bank strategy for urban development which focuses on the poor, while also taking into consideration the various impacts of urbanization on local ecosystems, including pollution and the sustainable use of natural resources. Liveability issues tend to severely affect the urban poor that constitute the largest percentage of the population. Since cities are sources of knowledge, centers of economic growth and the embodiment of dynamic physical development that cater for a teeming populace on daily basis, the need arises to embrace the principles of sustainable cities

to enhance liveability and the quality of urban life (World Bank, 2011), which this study is intended to achieve in Ado-Ekiti.

In simplistic terms, inclusion means a person or thing that is included, while inclusive is the adjectival derivation that translates to including a wide range of people, things, ideas, and entities (Oxford Advanced Learner's Dictionary, 2000). An inclusive city can thus be viewed as a place that exhibits a high level of inclusiveness, where the needs and aspirations of all citizens are satisfactorily accommodated. The Collaborative for Inclusive Urbanism (CIU, 2014) views an inclusive city as one in which all citizens are deemed important and are involved in a diverse range of developmental activities, leaving no room for marginalization, which may undermine robust interrelationships and scuttle innovative and meaningful development. The CIU believes that inclusive cities are “more affluent and socially just”; affluent in the sense that they harness the potential and capabilities of all and sundry to create wealth, and socially just as they embrace the interests of the otherwise marginalized, and offer equal opportunities for socio-economic attainment. Rhonda Douglas, the Global Projects Director for Women in Informal Employment: Globalising and Organising (WIEGO), and the Coordinating Partner for the Inclusive Cities Project (ICP), a partnership of membership-based organizations (MBOs) of the working poor, submits that:

[a]n inclusive city is the one that values all people and their needs equally. It is the one in which all residents - including the most marginalized poor worker - have a representative voice in governance, planning, and budgeting processes, and have access to sustainable livelihoods, legal housing and affordable basic services such as water/sanitation, and electricity supply...cities like these, however, are not achievable until informal workers can take their rightful place at the decision table, voice their demands and be heard...[t]he partners share a belief that to reduce urban poverty, we must reverse the current exclusionary trend taking place in so many modernizing cities and instead foster (as the project's name insists) inclusive cities. (WIEGO/ICP, 2014, p.5)

The CIU notes that inclusiveness checkmates socio-economic exclusion and resultant effects such as urban decay, and militates against the partitioning of the city into “ghettos of despair without opportunities for upward economic mobility”. Rather than placing an embargo on growth or debarring avenues for redevelopment, inclusiveness promotes meaningful growth and sustainable development, and shuns exclusivity and dislocation and the heavy financial burden that often accompanies them. The inclusive city therefore eliminates exclusion, and brings

otherwise marginalized activities into the center to join seemingly privileged activities, sharing mutual urban space cheek by jowl (CIU, 2014).

The concepts of sustainable development and sustainable city form the cornerstone of this study. It is widely accepted that unplanned urban physical development has undesirable implications, especially in urban settlements. The issue of sustainable human settlement has become so paramount that its principles were entrenched in the Millennium Development Goals (MDGs) adopted by world leaders in 2000, and revisited at the World Summit on Sustainable Development in 2002. In the planning of a sustainable city or eco-city, the impacts that it will have on the environment are considered from the inception. Its inhabitants are dedicated to minimizing energy, water and food inputs, as well as reduce waste outputs such as heat generation, gaseous emissions, and liquid discharge into the environment.

The term ‘ecocity’ was first used by Richard Register in a book titled: *Ecocity Berkeley: Building Cities for a Healthy Future* published in 1987 (Shmelev and Shmeleva, 2009). Thereafter, the sustainable city concept was propagated by Paul F Downton (2008), Timothy Beatley (2009) and Steffen Lehmann (2010), in their various works and publications. With the application of industrial ecology in its planning, the sustainable city is designed to be self-reliant less dependent and self-sufficient in food supply and renewable energy sources. The sustainable city aims at making minimal input into the climate change syndrome by lessening its ecological footprints through land use efficiency, pollution abatement, waste reduction, recycling and conversion to energy. The concept of the sustainable city is central to this study as it seeks to strike a balance between all sectors of the city, using its social, economic and environmental attributes to provide and ensure healthy, equitable, efficient and inclusive living for present and future residents in Ado-Ekiti.

Unplanned urban physical development is having undesirable socio-economic and environmental impacts, especially in the urban settlements of developing countries. Given its definition as development that caters for the survival requirements of the present generation while safeguarding the interests and needs of future generations (WCED, 1987), sustainability embraces cultural, social, economic, political and ecological issues of human survival in an

enduring global environment. The blunt implication of sustainability is that the world and its sensitive nature should be enjoyed and conserved by mankind, and passed on from generation to generation. The concept of sustainable development could be applied to curtail these challenging problems and to guarantee a secure future in Ado-Ekiti.

### **3.3 Philosophical ideologies**

The underlying principles of some philosophical ideologies were found to be harmonious with the tenets of this study. The relevance of phenomenology and postmodernism was considered.

The American Heritage Dictionary of the English Language, 4th Edition (2000) views phenomenology as a philosophy or method of inquiry based on the premise that reality consists of objects and events as they are perceived or understood in human consciousness, and not of anything independent of human consciousness. According to the Collins English Dictionary (2003a), phenomenology is a philosophical movement founded by Husserl (1905), which focuses on the detailed description of conscious experience, without recourse to explanation, metaphysical assumptions, and traditional philosophical questions; a science of phenomena as opposed to the science of being. Gallagher (2013) attests that phenomenology comes to limelight based on the meticulous and methodical work of Edmund Husserl (1905) on consciousness.

Phenomenology is derived from the combination of two Greek words: *phainómenon*, meaning ‘that which appears’; and *lógos*, meaning ‘study’. It thus denotes the philosophical study of subjective experience and consciousness (Zahavi, 2003). Phenomenology, then, is the study of things as they appear (phenomena). It is often said to be descriptive rather than explanatory: a central task of phenomenology is to provide a clear, undistorted description of the ways things appear (Husserl, 1982). The phenomenological movement was later expanded by a group of people who shared Husserl’s interests at the University of Gottingen and the Ludwig Maximilian University of Munich, both in Germany.

In Husserl's conception, the philosophy is primarily concerned with systematic reflection on and the study of the structures of consciousness and the phenomena that appear in acts of consciousness. Years later, the movement extended to France, the United States, and other parts

of the world, but in a different form conceptualised by Husserl (Zahavi, 2003). The conception of phenomenology has been widely criticized and developed not only by Husserl (1920) but by the early work of G.W.F. Hegel (1807) and scholars like Martin Heidegger (1927 & 1962), who was Husserl's research assistant, as well as existentialists such as Maurice Merleau-Ponty (1962), Jean-Paul Sartre (1969 & 1970) (Smith, 2009). Although elements of the 20<sup>th</sup> century movement can be found in earlier philosophers such as David Hume, Immanuel Kant (1724-1804) and Franz Brentano, phenomenology as a philosophical movement really began with the work of Edmund Husserl (1905), and was later adapted, broadened and extended by other philosophers. Hence, phenomenology has, at one time or another, been aligned with Kantian and post-Kantian transcendental philosophy, existentialism and the philosophy of mind and psychology (Smith, 2009).

Phenomenology has been comprehensively defined as:

the exploration and description of phenomena, where *phenomena* refers to things or experiences as human beings go through them. Any object, event, situation or experience that a person can see, hear, touch, smell, taste, feel, intuit, know, understand, or live through is a legitimate topic for phenomenological investigation. There can be a phenomenology of light, of colour, of architecture, of landscape, of place, of home, of travel, of seeing, of learning, of blindness, of jealousy, of change, of relationship, of friendship, of power, of economy, of sociability, and so forth. All of these things are phenomena because human beings can experience, encounter, or live through them in some way. (Seamon 2013, p.4).

As a phenomenological geographer in a department of architecture, he emphasises the relevance of phenomenology in environment-behavior research as it helps in understanding why places are important for people and how architecture and environmental design can be a vehicle for placemaking. He notes that phenomenology provides a helpful conceptual language that connects the environmental designer's more instinctive approach to understanding with the more intellectual approach of the academic researcher. He argues that 'environment-behaviour research gives attention to the ways that the physical, spatial, and human portions of the world sustain, reflect, and potentially change the lives and experiences of particular individuals and groups' (Seamon 2013, p. 24). It is affirmed that phenomenology offers an indispensable procedure for the environment-behaviour researcher to resolve the knotty tensions between feeling and thinking and between first-hand lived experience and second-hand conceptual accounts of that experience, which becomes relevant in understanding the intricacies involved in this study of lost spaces reclamation and greening in Ado-Ekiti.

Given that architecture and urban design revolve around a process of perceptive consciousness, creativity and invention, Seamon (2013) asserts that a phenomenological approach is a means to reawaken awareness among built environment designers of issues and procedures in environment-behavior research. Such research was not well-received by architects and designers in the wake of the strong positivist stance of such studies in the late 20<sup>th</sup> century. Franck (1987) suggested that this uneasiness was due to social scientists' unwillingness to come to terms with more innate strategies and priorities of the design profession. He stressed that a major advantage of phenomenology is its ability to provide common ground for discourse among stakeholders, considering the fundamental realities of experience as opposed to mere generalization. It also has the ability to resolve, or totally circumvent the positivist divide between 'objective' and 'subjective' entities.

Phenomenology is conceived of as a 'return to things', moving away from the abstractions of science and its neutral objectivity. It absorbs the concept of subjectivity, making the thing and its unique conversations with its place, rather than the thing itself, the relevant subject. Thus, the environment is perceived as 'the place', while the things which occur there 'take place'. In phenomenological parlance, the anthropogenic components of the environment become settlements of different scale, some large like cities, and some small like dwelling units. The paths between these habitats and the various elements which create the cultural environment become the secondary essential attributes of the place. The distinguishing features of the natural and artificial characters of the place provide the basic step in the phenomenological approach, while the secondary step involves the qualification of inside and outside, or the earth-sky relationship. The tertiary but terminal step is the assessment of character, or how things are made, and in what relation they exist as participants in the environment (Tsigrikiki, 2015). These basic steps in phenomenology guide the research approach in the scrutiny and understanding of the interrelationship between the natural and anthropogenic features in the environment of Ado-Ekiti, the case study area in this project.

In as much as phenomenology studies and interprets human experience, it is an avenue to observe and shed light on human existence, intentions, actions, and experiences that take place in their day-to-day activities (von Eckartsberg, 1998). Having emerged as a science of phenomena

rather than of being (Collins English Dictionary, 2003a), pursuing the goal of painstakingly describing ‘human life as it is lived and reflected upon in all of its first-person concreteness, urgency, and ambiguity’ (Pollio et al. 1997, cited in Seamon 2013, p. 2), phenomenology provides significant linkage between the nature of environmental behavior and experience in the built environment (Seamon, 2013), and offer particular insights into the subsisting way of life and the current state of the environment in Ado-Ekiti. The foregoing ideological concept debate is crucial to the understanding of the underlying problems in the study area as prerequisite to achieving sustainable cityscape and livelihood of comfort in the capital city of Ekiti State.

Postmodernism movement comes after Modernism era and describes the arts, cultural inclinations and related postmodernist activities (Reichl, 1989). Postmodernism is not easily defined, but described as a collection of ‘critical, strategic and rhetorical practices’ that utilize concepts like ‘difference, repetition, the trace, the simulacrum, and hyper reality’ to knock the balance off other concepts such as ‘presence, identity, historical progress, epistemic certainty, and the univocity of meaning’ (Aylesworth 2013, p. 1). Duignan (2013) sees postmodernism as a late 20th-century Western philosophy, specifically of European descent, typified by ‘broad skepticism, subjectivism, or relativism’ that brewed mistrust and ill feelings on ideological relevance in achieving political and economic stability. Postmodernism is also viewed as a critical movement based on prevailing postmodernist culture, which tries to reorganize some concepts cherished by humanists and modernists, such as ‘subjectivity, temporality, referentiality, progress, empiricism, and the rule of law’, as well as ‘aesthetic/cultural products’ reshaping features of postmodernity (Felluga 2013, p. 2).

Postmodernism is a general and wide-ranging term which is applied to art, literature, economics, philosophy, architecture, fiction, and cultural and literary criticism, among others. It is largely a reaction to the assumed certainty of scientific, or objective, efforts to explain reality. In the postmodern understanding, interpretation is everything; reality only comes into being through our interpretations of what the world means to us individually. In essence, it stems from the recognition that reality is not simply mirrored in human understanding of it, but rather, is constructed as the mind tries to understand its own particular and personal reality. For this reason, postmodernism is highly skeptical of explanations which claim to be valid for all groups,

cultures, traditions, or races, and instead focuses on the relative truths of each person (Public Broadcasting Station, PBS, 2013). This issue of individuality is a building block that plays vital role in physical development, and it is applicable to city formation and sustenance, which is relevant to this study.

It can be deduced that the ideals of postmodernism supports the perceived certainty of scientific methods, objectivity of individuals, and the strength of existing literature and concepts to diagnose the problems and challenges, and thereby provide the leeway to feasible solutions for restoration of sanity to the urban landscape to the benefit of residents in the state capital in particular, and mankind in general. The philosophy is equally applicable to planning and environment and thereby germane to this study as it aids the understanding and interpretation of the reality surrounding individual actions in the wanton encroachment on setbacks and open spaces in Ado-Ekiti.

In view of the reality that postmodernism relies on concrete experience instead of abstract principles, given that the outcome of one's own experience will necessarily be fallible and relative, rather than certain and universal (Public Broadcasting Station, PBS, 2013),postmodernism thereby transforms peoples' appreciation of the relationship between human beings, their culture, and the world. Based on this premise, the ideology is relevant to this research study, which is concerned with the dynamic histo-cultural antecedents and the factors that led to encroachment on setbacks and open spaces in Ado-Ekiti, with a view to finding lasting solutions that will guarantee sustainable landscape development in the state capital.

## CHAPTER FOUR

### HISTORICAL EVOLUTION, TOWN AND GARDEN, URBANIZATION AND CITY DEVELOPMENT

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#### 4.0 Introduction

This chapter is the first in a series of four (chapters four-seven) devoted to a literature review. It traces the historical evolution of cities from the medieval period. Renaissance gardens, baroque gardens, oriental gardens and space, and contemporary gardens and space are discussed as stages in city development. Other foci include industrial cities and the garden city response, and historical cities in time and space, traditional cities, landscaping and forest reserves, urbanization, city development and urban land issues to the current era. Given the contemporary focus on sustainability, the chapter also examines the sustainable city or eco city whereby landscapes and ecological footprints like forests and nature reserves are analysed to showcase practical achievements and international examples. The chapter also discusses cities in the south-west geo-political zone of Nigeria focusing on Ekiti State wherein is located the study area of this research project.

#### 4.1 Historical evolution of cities from the medieval period to the current era

The history of humanity, which is synonymous with the evolution of the human settlement, begins with the Paleolithic Era. Unlike the historical evolution of the Earth encompassing ancient geological records and the biological eras that predate the evolution of human beings, the history of the world comprises the study of archeological and documented evidences, from early times to the present. The invention of writing skills marked the beginning of the recording of ancient history (Webster, 1921; Derringer, 1986).

The three-age system in evolution of the Earth was differentiated along the lines of the Stone Age, Bronze Age, and the Iron Age. Although Bronze Age describes the advent of civilization, its sources can be traced to the era preceding the creation of writing skills. The prehistoric Paleolithic Era, also known as the Early Stone Age, succeeded by the Neolithic or New Stone Age. Thereafter, the revolution brought about by systematic agricultural practices occurred in fertile river valleys. The propagation of plants and rearing of animals brought about a remarkable

transformation in human history during the Agricultural Revolution (Cohen, 1977, Turge, 1998, and Bellwood, 2004), such as the transition of humans from nomadism to permanent habitation that began in caves.

During this era, city-states and the first civilizations developed in fertile river valleys. As early as 3000 BCE some of the first prominent, well-developed settlements had arisen between the Tigris and Euphrates in Mesopotamia (McNeill 1999), such as Eridu, Uruk, Ur (Boundless, 2016b), and Sumer, which were the first known complex civilization, developing the first city-state in the 4<sup>th</sup> millennium BCE. It was in these cities that the earliest known form of writing, cuneiform script, which began as a system of pictographs, first appeared *circa* 3000 BCE. A host of other cities developed on the banks of Egypt's River Nile (Baines & Jaromir, 2000; Bard, 1999; Grimal, 1992). The first empire, controlling a large territory and many cities, developed in Egypt with the unification of Lower and Upper Egypt *circa* 3100 BCE. Other cities, such as Mohenjo-daro with a population in the excess of 50,000, also developed in the Indus River valley (Allchin, 1995; Dani & Mohen, 1996; Chakrabarti, 2004, Boundless, 2016b). Similar civilizations probably developed on the Indian subcontinent, and the Yangtze and Yellow Rivers in China, but archaeological evidence for extensive urban construction there is less conclusive (Lee, 2002).

In what is now modern Zimbabwe, various kingdoms evolved from the Kingdom of Mapungubwe (1075-1220) in modern South Africa (Hall & Steffo, 2006). The kingdoms grew prosperous by establishing trade links with the Swahili people on the East coast of African (Ehret, 2002). They built large defensive stone structures without mortar such as Great Zimbabwe, capital of the Kingdom of Zimbabwe; Khami, capital of the Kingdom of Butua (Davidson, 1991; Shillington, 2005) and Danamombe (Dhlo-Dhlo), capital of the Rozwi Empire (Davidson, 1991). The Swahili people inhabited the East African coast from Kenya to Mozambique and traded extensively with Asians and Arabs, who introduced them to Islam (De Vere Allen, 1993; Collins & Burns, 2007). They built many port cities such as Mombasa, Zanzibar, and Kilwa (Newitt, 1995), which were known to Chinese sailors under Zheng He, and Islamic geographers such as the Berber traveler Abu Abdullah ibn Battuta (Halsall, 2001).

In other the parts of the world, different places developed through history at different times and diverse paces. As a result of widespread colonization, increasing international trade and diplomatic relationships of the 18<sup>th</sup> century, civilizations became considerably interwoven, ultimately resulting in globalization. In the past two and half centuries, there have been tremendous acceleration in the rate of population growth, acquisition of knowledge, advancement in technology and commerce, as well as development of destructive weapons and increasing spread of environmental degradation. These chequered developments have created prospects as well as threats that currently face global human communities, especially cities and mega-cities (Sciam, 2005).

In the Sahel region of West Africa, numerous Islamic kingdoms grew as centers for trans-Saharan trade in salt, ivory, gold and slaves, such as Ghana, Mali, Songhai, and Kanem Empires. South of the Sahara, civilisation thrived in the tropical forests and coastal areas that were not favourable for the survival of horses and camels. Such included the Old and New Oyo Empires of the Yoruba people cradled in Ile-Ife city; the Benin Empire of the Edo people centered in Benin City; the Igbo Kingdom of Nri which produced advanced bronze art at Ugbo Ukwu; the Akan people, noted for their intricate architecture easement. Particularly, the Yoruba city of Ife was notable for its naturalistic art (Blier, 2012a), and as the Kingdom that gave birth to many Yoruba towns ruled by *obas* or crown kings (Collins & Burns, 2007) including Ado-Ekiti, founded *circa* 1310AD (Olomola, 1984), which was the case study area in this research project.

#### **4.1.1 Historical cities**

A city has been defined as a relatively large and permanent human settlement (Goodall, 1987; Kuper and Kuper, 1996). While there is a lack of evidence on how the first cities emerged (Boundless, 2016b), it is generally agreed that the earliest cities evolved in the post-Neolithic revolution era. With the Neolithic revolution came the advent of agriculture, which led to the abandonment of hunting and wandering, and supported population agglomeration and, in turn, city development (Bairoch, 1988). Paul Bairoch's argument that agricultural activity was necessary for meaningful city formation is more widely accepted than that of Jane Jacobs, an urban theorist, who posits that city formation preceded the coming of agriculture (Jacobs, 1959).

The antecedents of towns and cities vary in line with different opinions on whether a particular ancient settlement can be considered a city in the sense of a central place of trade, offering services to people living in close proximity to one another. Hence, the first true towns are regarded as large settlements where the inhabitants moved beyond farming in the immediate vicinity to commercial activities, food storage and power. The following ten parameters have been used to define a typical historical city:

1. Above normal size and density of the population.
2. Differentiation of the population. Not all residents grew their own food, leading to specialists.
3. Payment of taxes to a deity or king.
4. Monumental public buildings.
5. Those not producing their own food were supported by the king.
6. Systems of recording and practical science.
7. A system of writing.
8. Development of symbolic art.
9. Trade and import of raw materials.
10. Specialist craftsmen from outside the kin-group (Childe, 2008).

While these attributes may not all be applicable in every case, these general metrics are indispensable yardsticks in determining the status of ancient cities.

#### **4.1.2 Structure and landscape of traditional Yoruba cities in the southwest geopolitical zone of Nigeria**

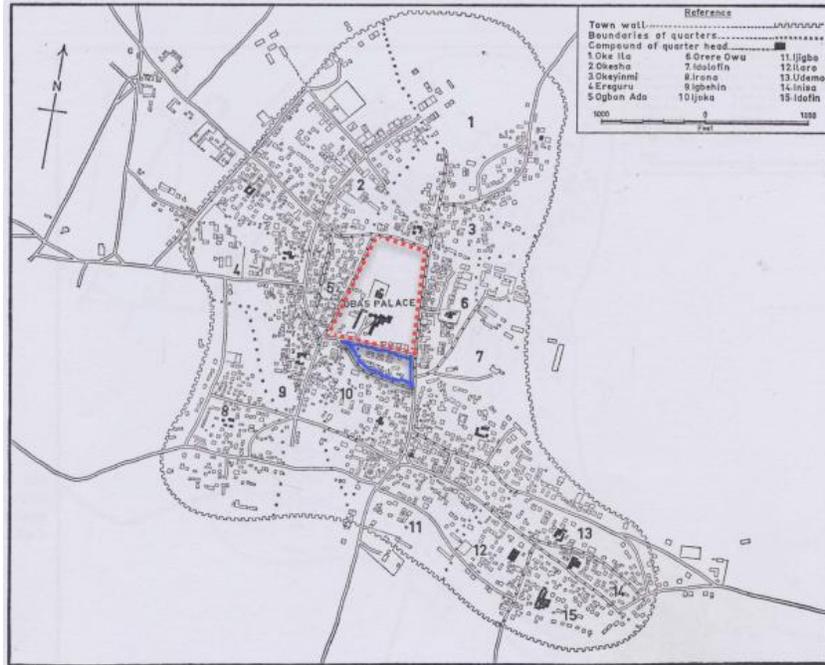
Yoruba traditional cities in the southwest geopolitical zone of Nigeria existed prior to the colonial era. They are purely traditional in origin, having been founded by one lineage or another in affiliation with the Ife Dynasty. Taylor (1942) points out that the formation of these settlements are closely linked to the environment, while Ojo (1966a) agrees that factors of geography and environment were very important to the emergence and distribution of these cities. These views are corroborated by the fact that relief was the predominant consideration in the siting of many Yoruba towns and cities, as this offered protection from enemies (Ojo, 1983). A recent study (Ojo-Fajuru and Adebayo, 2014a) observes that over the course of time, these cities experienced rapid growth and development, which led to the removal of vegetal to make way for buildings and agriculture. Historically believed to be the cradle of Yoruba city-states or kingdoms, Ife was ruled by the majestic *oba*, the king or paramount ruler, with the title *Ooni of Ife*. The Ife model of government was adapted at Oyo, where the *oba* or king, called the *Alaafin*

of Oyo, dominated vast Yoruba and non-Yoruba city-states and territories as far as Dahomey (Ojo, 1966b; Blier, 2012b).

The core of activity in the old Oyo Empire was its capital located at Oyo-Ile, also known as *Katunga* or Oyo-oro (Goddard, 1971). The two most important structures in Oyo-Ile were the 'Afin Oba' (King's palace) and the market. The palace was centrally located in the city close to the 'Oja Oba', that is the King's market. The capital was fortified with a tall earthen defense wall built around it with several gates. The large Oba's palace with an extensive meeting courtyard and the market are synonymous with the prominence of the king in Oyo (Ojo, 1966a; Ojo, 1966b; Blier, 2012b; Old Oyo National Park, 2014). A sacred forest of cultural and traditional-religious significance was usually located behind the Oba's palace (Ojo, 1966a; Ojo, 1966b). Dmochowski (1990) observed the dominance of monumentality in the 'afins' of Yoruba rulers. Many Yoruba cities, exhibit this characteristic morphological pattern of palace and market forming the core area with other developments radiating in different directions, including Ado-Ekiti, which has similar attributes and physical form.

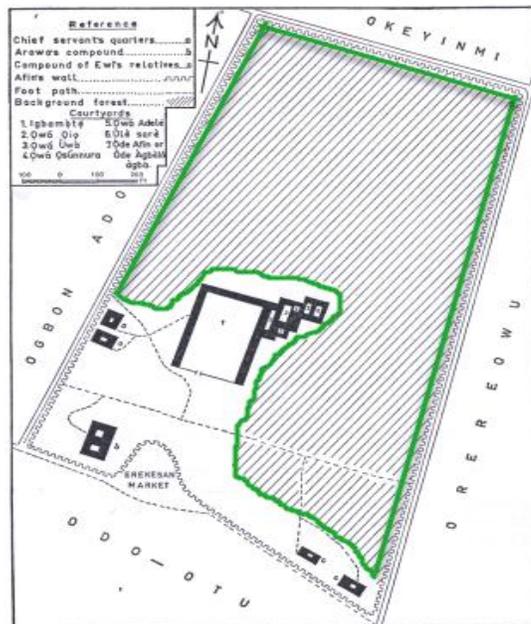
Ado-Ekiti began as a predominantly agrarian community with some nomadic attributes. The city was governed by the Ewi Dynasty whose Empire and kingship extended to outlying farm settlements. Similar in character to other Yoruba towns and cities that emerged in the pre-technology era, the city was well integrated with the countryside with a significant part of its indigenous form accruing through cultural contact and diffusion. Since little or no effort was made to control intrusions, a close-knit and disorderly assemblage of compounds bound people together. The Afin Ewi (the Palace of Ewi the King) and the Oja Erekesan (the King's market) highlighted in red and blue respectively in Figure 4.1 are centrally located at the converging point of a complex network of paths.

The chief's compounds (shaded black in the diagram), form nucleuses in the surrounding quarters and were designed to look towards the King's Palace (Ojo, 1966a). The palace was backed by a preserved forest enclosed within an imposing wall measuring an average 12 feet (3.66 meters) high and 3 feet (0.91 meters) thick (Figure 4.2).



Source: Ojo, AG 1966a p. 133

Figure 4. 1: The Palace of Ewi and the King's market edged in red and blue respectively are centrally located at the converging point of movement paths.



Source: Ojo, AG 1966a p. 139

Figure 4. 2: The layout of Ewi's Palace in 1923 showing the fullness of the background forest.

Apart from the ubiquitous background forests of the palace, many patches of forest and groves adorned the landscape of Ado-Ekiti. The separate living quarters and activity areas of this traditional Yoruba city are also surrounded by continuums of forest land. Olomola (1984) notes that the three communities on which Ado-Ekiti was founded around 1310 AD were widely separated by forests and bush, such that a forest at Ojido separated Ijigbo and Inisunja from Odo-Ado; bush at Elekure separated Odo-Ijigbo from Irona; a forest at Oke Orojuda separated Aremu from Irona; a stretch of forestland at Okelaja separated Okesa from Okeyinmi and Oke Ila and some bush separated Orereowu and Okeyinmi from Oke Ila. Those surrounding the city included Ugbo Ogun (Forest of Ogun, the god of iron), Ugbo Momo (Forest of Momo, the provider of children), Ugbo Elekute (Forest of Elekute, the founder and head of Ekute Quarters), and the dreaded Ugbo Alapara (Forest of Alapara, the god of thunder), where ‘unnatural dead bodies’ were dumped. However these forests have been depleted over the years due to increased space demand for housing, agriculture, industrialization and modernization at the onset of rapid urbanisation.

Breese (1966) notes that the Yoruba people experienced urbanization at an early stage, while Mabogunje (1962) asserts that they lived in cities of appreciable size before the onset of colonialism. He highlights the early onset of Yoruba civilization:

[a]s early as 1856 there were nine Yoruba cities of over 20,000, including three of over 60,000 population. By 1911, the number of Yoruban “cities” had increased to eleven, with five having 60,000 population; by 1952 there were nine [sic] such cities. (Breese, 1966, p. 28)

Bascom (1962) attests that the Yoruba were living in ‘city-like areas’ before and during the colonial period, thereby making them one of the most urbanized people in Africa. Around 22% of the population lived in cities of more than 100,000 people, while over 50% lived in settlements of 25,000 or more. He likened the rate of urbanization in 1950 to that of the US and based on the burgeoning of major cities such as Ibadan, Osogbo, and Ogbomoso after the demise of Old Oyo, he projected that the Yoruba nation would remain the most urbanized ethnic group in Africa. True to Bascom’s prediction, Yoruba cities in the southwest geopolitical zone of Nigeria rank highest in terms of population and development. Campbell (2012) notes, that thirteen of the 58 (22.41%) major cities in the country are located in this zone. Moreover, two

out of seven (28.57%) Nigerian cities with a population of over 1 million people are Yoruba cities. Lagos, a Yoruba city, currently has a population of 21 million and is the largest city not only in Nigeria, but in Africa.

#### **4.1.3 Medieval towns**

The medieval towns emerged during the Dark Ages following the collapse of the Roman Empire due to excessive consumption. This was the age of barbaric rule, with feudalism the order of the day, and reliance on agriculture. Spreiregen (1965) noted that the decline of Rome left many outpost settlements across Europe which became the nuclei of a new society. Given the strategic location of some of these settlements, by the 10<sup>th</sup> century, they began to grow into viable towns, while some castle towns also grew. The growth of medieval towns was attributed to increased food production. The population increased, resulting in gradual specialization, with money replacing land as the medium of exchange. A merchant class also developed. The growth in population and trade eventually created the need for marketplaces, which soon became agora or forums for the medieval towns.

The Roman medieval towns built by the young emperors were rectangular in shape with a regular grid-iron pattern. They were built atop hills as planned fortresses enclosed in double circular walls. They align with and bear the shape of the slope. The growth of a town around either a monastery or castle has been described as a natural growth starting at gateways, extending along roadways, and fanning out till it logically assumed a radio-centric pattern (Spreiregen, 1965). Medieval towns were equipped with churches and walls, with separate walls around marketplaces. The centre of power was the church; when it collapsed, the empire suffered the same fate. The road pattern was narrow and winding, and radiated from the plaza to the gate. The houses were small but had gardens and privacy. The winding streets preclude long vistas and thereby focused people's attention on immediate details. When walking through a medieval town, the observer catches glimpses of a church tower in sequential views, or keeps it in uninterrupted sight. Whichever way, one never feels lost as the smallness of medieval towns guarantees vivid construction and human activities.

A classic example of a medieval town is the Italian hill town of Siena, which comprises of many political sectors, each situated on conspicuous topography with its own mini squares, but together opening into well-defined piazzas adjacent to a centrally located and imposing cathedral. The city's streets are very narrow and winding, and follow logical topographical levels, all converging on the central Piazza del Campo, which offers an expansive outdoor living room for the entire city (Spreiregen, 1965).

#### 4.1.4 Renaissance gardens

The first Renaissance text to include garden design was *De Re Aedificatoria* ('The Ten Books of Architecture') by Leon Battista (1404-1472), who drew on the architectural principles of Vitruvius (Strathern, 2003), and used quotations from Pliny the Elder and Pliny the Younger to describe what a garden should look like and how it should be used. He argued that a villa should both be looked at and a place to look from; that the house should be placed above the garden, where it could be seen and the owner could look down into the garden. Alberti placed on record that:

The construction will give pleasure to the visitor if, when they leave the city, they see the villa in all its charm, as if to seduce and welcome the new arrivals. Toward this end, I would place it on a slightly elevated place. I would also have the road climb so gently that it fools those who take it to the point that they do not realize how high they have climbed until they discover the countryside below. (Barenboim and Shiyani, 2006)

Within the garden, Alberti recommended that:

You should place porticos for giving shade, planters where vines can climb, placed on marble columns; vases and amusing statues, provided they are not obscene. You should also have rare plants...Trees should be aligned and arranged evenly, each tree aligned with its neighbours. (Barenboim and Shiyani, 2006)

The early Italian Renaissance gardens were designed for contemplation and pleasure with tunnels of greenery, trees for shade, an enclosed *giardino segreto* (secret garden) and fields for games and amusement. The Medici, the then ruling dynasty of Florence, used gardens to demonstrate their power and magnificence. Har (1999) posits that during the first half of the 16<sup>th</sup> century, magnificence came to be perceived as a princely virtue, and all over the Italian peninsula architects, sculptors, painters, poets, historians and humanist scholars were commissioned to concoct a magnificent image for their powerful patrons. For example, the central fountain at Villa di Castello featured a statue of Hercules defeating Antaeus, alluding to the triumph of the

garden's builder, Cosimo de' Medici over a faction of Florentine nobles who had tried to overthrow him (Norwich, 1997). The garden was a form of political theater, presenting the power, wisdom, order, beauty and glory that the Medici brought to Florence.

The Italian Renaissance garden was thus a new style of garden which emerged in the late 15<sup>th</sup> century at villas in Rome and Florence, inspired by classical ideals of order and beauty, and intended for the pleasure of the view of the garden and the landscape beyond, for contemplation, and for the enjoyment of the sights, sounds and smells of the garden itself. In the late Renaissance, the gardens became larger, grander and more symmetrical, and were filled with fountains, statues, grottos, water features and other installations designed to delight their owners, and as well amuse and impress visitors. The style was imitated throughout Europe, influencing the gardens of the French Renaissance and the English garden. Some of the early Italian Renaissance gardens such as the Palazzo Piccolomini at Pienza, Tuscany (1459), the Cortile del Belvedere in the Vatican Palace, Rome (1504-1513), and the Villa Madama, Rome (1516) are considered as follows.

The oldest existing Italian Renaissance garden is at the Villa Medici in Fiesole, north of Florence. It was created sometime between 1455 and 1461 by Giovanni de' Medici (1421-1463) the son of Cosimo de' Medici, founder of the Medici dynasty. Unlike other Medici family villas that were located on flat farmland, this villa was located on a rocky hillside with a view over Florence as shown in Figure 4.3.

The Villa Medici followed Alberti's precepts that a villa should have a view "that overlooks the city, the owner's land, the sea or a great plain, and familiar hills and mountains", and that the foreground should have "the delicacy of gardens" The garden has two large terraces, one at ground level and the other at the level of the first floor. From the reception rooms on the first floor, guests could go out to the loggia and from there to the garden; the loggia thus connected the interior with the exterior (Brotton, 2006).



(Source: Coffin, DR (ed.) 1972, *The Italian garden: the first Dumbarton Oaks colloquium on the history of Landscape Architecture*, Dumbarton Oaks Trustees for Harvard University, Washington DC, p. V)

Figure 4. 3: The Medici Villa at Fiesole.

Unlike later gardens, the Villa Medici did not have a grand staircase or other feature to link the two levels. In 1479, the poet Angelo Poliziano, tutor to the Medici children, described the garden in a letter:

...seated between the sloping sides of the mountains we have here water in abundance and being constantly refreshed with moderate winds find little inconvenience from the glare of the sun. As you approach the house it seems embosomed in the wood, but when you reach it you find it commands a full prospect of the city. (Panofsky, 1969, p. 38)

The garden was inherited by Giovanni de' Medici's nephew, Lorenzo de' Medici, who made it a meeting place for poets, artists, writers and philosophers.

The Palazzo Piccolomini at Pienza was built by Enea Silvio Piccolomini, Pope Pius II from 1458 to 1464. He was a Latin scholar that wrote extensively on education, astronomy and social culture (Huizanga, 1945). In 1459, he constructed a palace for himself and his Cardinals and court in his small native town of Pienza. Like the Villa Medici, a major feature of the house was



(Source: Coffin, DR (ed.) 1972, *The Italian garden: the first Dumbarton Oaks colloquium on the history of Landscape Architecture*, Dumbarton Oaks Trustees for Harvard University, Washington DC, p. I)  
Figure 4. 4: The imposing view of the Palazzo Piccolomini Gardens from the loggia.

the commanding view from the loggia over the valley, the Val d’Orcia, to the slopes of Mount Amiata (depicted in Figure 4.4). Closer to the house were terraces with geometric flowerbeds surrounding fountains and ornamental bushes trimmed into cones and spheres similar to Pliny’s garden described in Alberti’s *De Aedificatoria* (Starn, 1998). The garden was designed to open to the town, the palace and the view.

In 1504, Pope Julius II commissioned architect Donato Bramante to recreate a classical Roman pleasure garden in the space between the old papal Vatican palace in Rome and the nearby Villa Belvedere. His model was the ancient sanctuary of Fortuna Primigenia at Palestrina or, ancient Praeneste, and he used the classical ideals of proportion, symmetry and perspective. He created a central axis to link the two buildings, and a series of terraces connected by double ramps, modeled after those at Palestrina. The terraces were divided into squares and rectangles by paths

and flowerbeds, and served as an outdoor setting for Pope Julius's extraordinary collection of classical sculpture, which included the famous Laocoon and the Apollo Belvedere. The heart of the garden was a courtyard surrounded by a three-tiered loggia, which served as a theater. A central exedra formed the dramatic conclusion of the long perspective up the courtyard, ramps and terraces (Attlee, H 2006).The Venetian Ambassador described the Cortile del Belvedere in 1523 thus:

One enters a very beautiful garden, of which half is filled with growing grass and bays and mulberries and cypresses, while the other half is paved with squares of bricks laid upright, and in every square a beautiful orange tree grows out of the pavement, of which there are a great many, arranged in perfect order....On one side of the garden is a most beautiful loggia, at one end of which is a lovely fountain that irrigates the orange trees and the rest of the garden by a little canal in the center of the loggia. (Panofsky 1969, p.38)

The construction of the Vatican Library across the centre of the *cortile* in the late 16<sup>th</sup> century tended to disrupt Bramante's intricate design but his ideas of proportion, symmetry and dramatic perspectives were still obvious in many of the great Italian Renaissance gardens (Murray and Murray, 1963).

Perched on the slopes of Mount Mario, Villa Madama commands a sweeping view of Rome. In 1516, Pope Leo X started the construction of Villa Madama when he commissioned Raphael, the most famous artist in Rome to handle the project, which was completed by Cardinal Giulio de' Medici (1478–1534). Inspired by the ancient text, *De Architectura* by Vitruvius and the writings of Pliny the Younger, Raphael imagined his own version of an ideal classical villa and garden. It had a great circular courtyard, and was divided into a winter and summer apartment. Passages led from the courtyard to the great loggia with views of the garden and Rome. A round tower on the east side served as a garden room in winter, warmed by the sun coming through glazed windows. The villa overlooked three terraces, a square, a circle, and an oval. As illustrated in Figure 4.5, the top terrace was planted with chestnut trees and firs while the lower one was intended for plant beds (Perry, n.d.)



(Source: Landscapelover, 2010 “Villa Madama” in *Cemeteries and monuments, Gardens, History, Italy*, A landscape lover’s blog, Yorkshire).

Figure 4. 5: Villa Madama (1516): an aerial view of the villa and its grounds recently.

Work on the Villa Madama stopped in 1520 after the death of Raphael, but was continued by other artists until 1534. They finished half of the villa including half of the circular courtyard, and the northwest loggia that was decorated with *grotesque frescoes* by Giulio Romano and stucco by Giovanni da Udine. Fine surviving features include a fountain of the head of an elephant by Giovanni da Udine and two gigantic stucco figures by Baccio Bandinelli at the entrance of the *giardino segreto*, the secret garden (Open University, 2007). At present, the villa is a state guesthouse for the Italian Government.

#### 4.1.5 Baroque gardens

Baroque design forms originated in Italy at the end of the 16<sup>th</sup> century and flourished there and in Germany, Austria, and Spain during the 17<sup>th</sup> and early 18<sup>th</sup> centuries. Baroque is a term signifying art and architecture that is robust, boldly sumptuous, grandly ornamental,

curvaceously plastic, and therefore full of movement and the play of light and shade. A highly theatrical approach to design, baroque penetrated but never dominated the art and architecture of France and England (Rogers, 2001).

The 17<sup>th</sup> century Italian baroque and rococo gardens were usually inspired by topography, and wove dramatic hanging terraces and ornamental flights of stairs into hillsides to produce theatrical arrangements of landscape. Rogers (2001) noted that the dramatic potential of moving water continued to be exploited in the construction of elaborate sculptural cascades similar to those at Villa Lante. Baroque gardens were vehicles for princely pomp and display, and the glorification of their patrons became even more explicit as decorative coats of arms and other family emblems were featured prominently rather than being merely symbolically encoded into the landscape. Not only were dramatic astonishment and theatrical perspective effectively used in the layout of Italian Baroque gardens, but many of the gardens of this period contained outdoor theatres with a grassy stage, hedges for wings, and sometimes peeping forth from the greenery, terra cotta figures representing stock characters of the *commedia dell'arte* tradition popularized by troupes of Italian actors from the second half of the 16<sup>th</sup> century (Rogers, 2001).

The Italian Baroque garden designers probably found the Cartesian paradigm of non-place-specific axial planning less congenial than one that recognised place as particular and bounded. This could be explained by the fact that topography throughout much of Italy is hilly, promoting greater visual opportunity for spatial enclosure rather than spatial extension. In addition, Italian designers were more likely to retain, however unconsciously, the concept of *topos*, the philosophical notion of emplacement derived from Aristotle since it was already abundantly manifested in the antique classical landscape tradition that they inherited (Rogers, 2001).

A classic example of the Italian Baroque garden is Villa Aldobrandini built by Cardinal Pietro Aldobrandini for himself and his uncle, Pope Clement VIII shortly after his election in 1592. Villa Aldobrandini brought Frascati, a hillside town outside of Rome to fame as it became a locale, just like Tivoli, of the *villeggiatura* - the annual summertime retreat to the country from the heat of the city. The impressive design of this exotic garden was undertaken by architect Carlo Maderno (c.1556-1629). He received considerable assistance from the fountain engineer,

Giovanni Fontana as the task involved the expensive introduction of water to the garden from the Molara Springs on Monte Algido. An impressive cascade and magnificent water theater were constructed (Rogers, 2001).

Other examples of Italian Baroque gardens include Farnese Gardens - the Barchetto - at Caprarola and on the Palatine Hill, Rome; Villa Borghese and Villa Pamphili - the country retreat of the Roman aristocracy; and Villa Garzoni and La Gamberaia - the Tuscan garden design.

#### **4.1.6 Oriental gardens and space**

The Orient is literarily the eastern part of the world, especially China and Japan, hence oriental. The influence of Japan is dominant. Japan is the principal island that lies off the coast of China with the Pacific Ocean to the east, and the Sea of Japan to the west.

Earthquakes are common and this favoured the timber construction perfected by Japanese scientific ingenuity in the framing together of component parts. Forests occupy a quarter of the area of titled land. Stone in Japan is unstratified and frequently used in polygonal blocks, particularly for the lower part of walls on which the upper timber construction is erected. These are mainly granite, porphyries and volcanic rocks, with practically no limestone or sandstone. The ocean current and sea breezes make for a liveable climate. Where possible, houses face the south and deeply projecting eaves offer protection from the summer sun, while high courtyard walls shield against the winter winds. In summer, the movable casement windows and partitions, which form the house fronts and offer little resistance to the heat, are removed to leave the houses entirely open to the breezes.

Shinto was the indigenous religion in Japan. With no moral code, it consisted of ancestor and nature worship that never involved a desire to create images or elaborate temples. It was similar to the Taoism of China, which was absorbed by Buddhism, also brought from China. The Buddhists introduced the building of temples in Japan. Socially, Japan is credited with civilisation, culture and commerce before the historical period, which commenced around 400AD, when Chinese civilisation, culture, arts and social customs came to Japan through Korea

with a consequent increase in the building of canals, bridges, houses, etc. When Kyoto became the capital around 794AD, the art of domestic architecture and landscape gardening gained greater prominence in the cityscape to the extent that Japan has joyous gardens that incorporate trees and water.

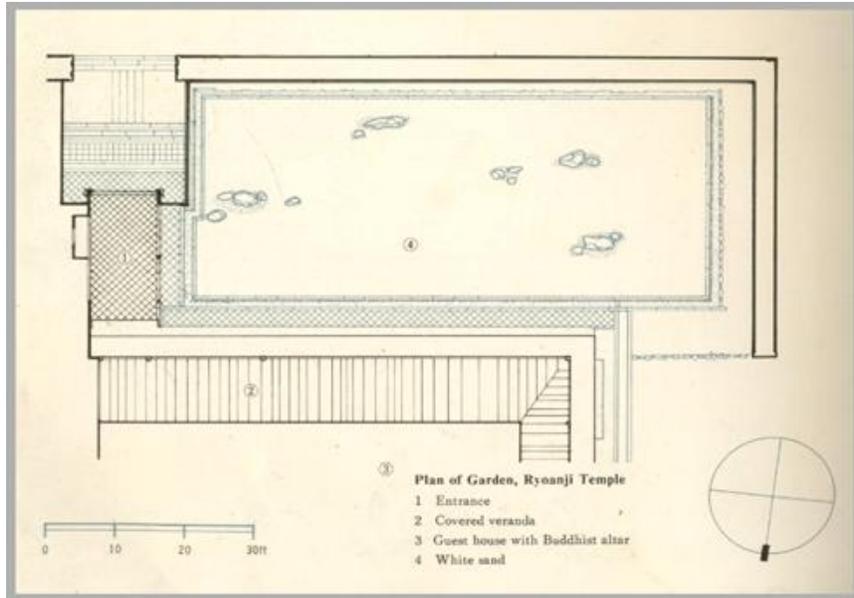
The following are the distinctive structures of some oriental gardens:

The Garden of Ryoan-ji Temple is symbolic in the sense that only stone and white sand are used in its design and there are no trees or bush. The only objects used are 15 stones arranged in different groups. The layout of the Garden is embellished with careful paving design, with the sand raked to create the ripples of the sea, while the stones depict the mountains emerging from the sea of cloud. According to Ito and Iwamiya (1972), it is the most famous example of stone garden, reflecting Zen Buddhist philosophical thought, located at the Ryoanji, occupying less than 400yds<sup>2</sup> (334.45m<sup>2</sup>) of rectangular space of sand on which the stones are distributed (Figure 4.6). It is bounded by low walls on the western and southern sides, while abutting the temple on the eastern and northern sides. This is perhaps the first time in history that the sea was abstracted and the land was made to look like a 'sea of cloud'. The Garden is symbolic in the sense that:

[i]t is austere, unchanging, endlessly fascinating...the stones may be explained...as a mother tiger and her cubs crossing the sea, or as a seascape, the sand being the shallow ocean, the rocks, the island, or as a mystical embodiment of the idea of the trinity at the heart of all Buddhism-the fact remains that these rocks are also what they are, neither more or less... Ryoanji's garden is the ideal of a garden; it is the living proof of the perfect garden. (Ito & Iwamiya, 1972, p. 174)

High courtyard walls offer protection against the winter winds. While many dry gardens used moss, grass and even trees, as well as sand and stones, it was the stones that are considered important. The innovative addition of water and plants to the original ideals of the Garden of Ryoanji Temple produced the following exotic oriental gardens.

In the oriental garden captioned 'A little piece of Asia', a Japanese sand garden featuring rocks, and water with perhaps a couple of plants, either as an inside or side garden idea or hot tub plan, presents pleasing designs. As shown in Figure 4.7, the addition of a few rocks transforms the



Source: Ito & Iwamiya, 1972, p. 172.  
 Figure 4. 6: The Ryoanji Temple.



(Source: [www.houzz.com/photos/1243639/A-little-piece-of-Asia-landscape-other-metro](http://www.houzz.com/photos/1243639/A-little-piece-of-Asia-landscape-other-metro) Retrieved 5 March 2014.  
 Figure 4. 7: A little piece of Asia (Annotated by the Researcher).

oriental garden into a form of Zen garden, which are tranquil places exhibiting natural elements designed for serenity, and thereby creating a stripped-down awareness of thought (Rule, 2012).

Rock gardens are unique growing environments, and not all plants will withstand the arid conditions. Apart from alpine plants, some rare ground covers flourish in these conditions and can be used to create miniature gardens. Knawel cushion (*Scleranthus biflorus*), commonly known as Sunshine Moss is a fascinating specimen that features prominently in rock gardens. This slow growing, mound-forming plant provides a dense carpet of green foliage that will slowly creep over the surrounding rocks. The translucent acrylic screen recalls the traditional Japanese shoji screen, while the native Japanese Fairy Bamboo (*Bambusa gracilis*) and Japanese maple in the background complete the oriental scenery (Rule, 2012).

The Atherton Japanese Garden is located in San Francisco, California, USA. Within the garden, small rocks or gravel called ‘Pami Pebble’ composed of small 3/4-1/2" (1.905-1.27cm) diameter rounded gravel of various colours cover the floor space. Rocks dot the landscape; stones are used to create curved paths through the garden, while trees complement the paved surfaces. Japanese garden lanterns are strategically placed as sculptural objects, and for nighttime illumination. The whole garden is woven together through different spaces to achieve an exciting environment and elegant simple beauty (Kikuchi, 2012) as seen Figure 4.8.



(Source: [www.houzz.com/photos](http://www.houzz.com/photos), Retrieved 2014-03-05)

Figure 4. 8: Atherton Japanese Garden.

While Japanese gardens appear to be minimal and simple, every rock, sculpture, plant and path is placed with great care. These elements inspire calm meditation when sitting and looking out at the garden and provide a very specific experience while walking through it.

The typology of gardens discussed above reveals that through the ages, people's innate desire to interact with nature cuts across the various climatic regions of the world. The geographical location of these gardens, the choice of materials and construction techniques also vary across the globe. The discussion also highlighted an array of unique combinations and the importance of natural, soft landscaping elements such as trees, hedges, shrubs, flowers and grasses of various hues and colours in harmony with human-made or naturally occurring hard landscape entities of diverse texture and form like rocks, cobblestones, pebbles, interlocking tiles, sand, pieces of pottery, furniture and water to create pleasurable spaces, refreshing places and atavistic vistas for people to enjoy, use for recreation or meditate in. They underscore the physical effects, aesthetic beauty, psychological benefits and social wellbeing derivable from positive human-environment interactions within diverse ecological and cultural settings, which are intended for replication in the capital city of Ekiti State.

However, the culture of garden development is more advanced in developed regions of the world, especially in Europe, North America, Southeast Asia, Australia and the Oceania. Consciously-planned and extensive gardens have eluded cities in developing countries including Ado-Ekiti, the study area. In their accounts of the evolution, layout, morphology, geosophy and environment of Yoruba settlements, Mabogunje (1962), Bascom (1962), Afolabi (1966), Breese (1966), Olomola (1984), Dmochowski (1990), and Afolabi (1993a and 1993b) do not cite any specific garden in these traditional cities that were notable for their relatively unplanned nature. In Ado-Ekiti, forests and sacred grooves were used for cultural, agricultural and defense purposes, rather than for recreational functions. Contrary to statutory provisions in extant laws, spaces that are normally used for public gardens and green spaces have been usurped for other development, a situation that seems to be heading towards crisis point.

In recent times, government at all levels has recognized the importance of parks and gardens, and has embarked on space reclamation for greening as one of the dividends of democracy. The case

of Ado-Ekiti highlights inconsistencies and drawbacks. This study therefore leverages on international experiences and techniques to devise local models to redress this trend through advocating for the recovery of lost public spaces and bring back green spaces in the form of equitable and inclusive gardens and parks. This is geared towards a sustainable green economy, green urbanism and strengthening the primordial bond between people, nature and the environment in Ekiti State capital, thereby making it the city of the future.

## **4.2 Urbanization, city development and urban land issues**

Urbanization refers to the physical growth of urban areas as a result of rural migration and even suburban concentration into cities, while suburbanization is a term used to describe the growth of areas on the fringes of major cities, and is thus one of the many causes of increased urban sprawl. Urbanization occurs when people move from rural to urban areas so that the proportion of people living in cities increases while that of those in the countryside diminishes. Migration is often motivated by any or the combination of social, economic, and environmental factors. Mitchell (1966) refers to urbanization as the process of becoming urban by switching from agriculture to other pursuits common to cities with a corresponding change in patterns of behavior.

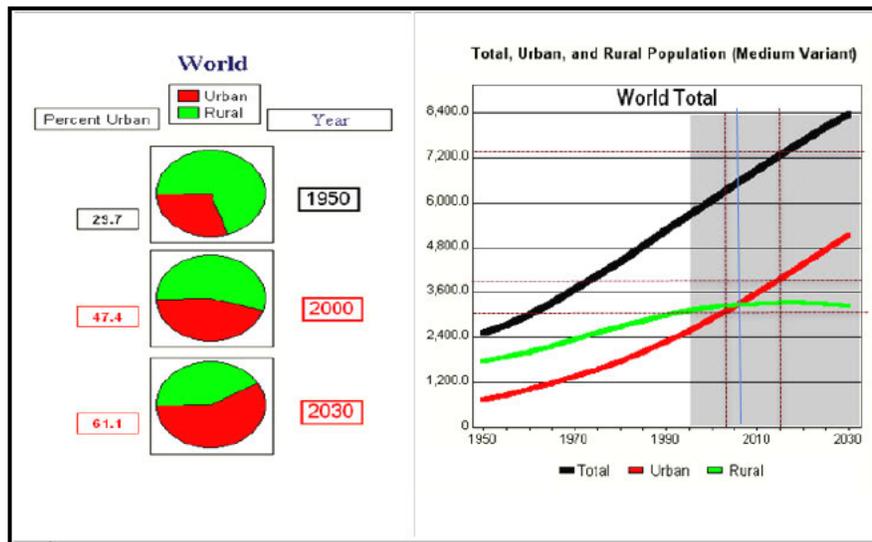
Therefore, to urbanize means to render urban, or to remove rural attributes on account of aggregating a large population in a particular location or place (Ojo-Fajuru, 2008). Urbanization generally occurs with modernization and industrialization, which act as pull factors that attract people to cities, just as they constitute the main reasons that push people from the hinterland in a steady phenomenon of rural exodus. Living in cities is believed to enable individuals and families take advantage of the opportunities of proximity, diversity, and market competition. Due to their high populations, urban areas have much more diverse social communities than rural areas, allowing people to find others like them.

### **4.2.1 Urbanization and city development**

The UN (2002) projected that half of the world's population would live in urban areas by the end of 2008. The world's population has urbanized at a rapid rate, and, as Ojo-Fajuru (2008) notes, the development of the world is most visible in cities, which are the driving force in global social,

economic and environmental development. He added that the city can be likened to the human life cycle, traceable from its inception through growth to maturity, old age and death. The first and second stages of city development are the growth and maturity stages, respectively, while the third is the decay-decline stage. If nothing positive is done at the third stage, chaos and deterioration become obvious in the urban fabric. Further perpetuation of this syndrome could degenerate to urban blight and slums, accompanied by poor quality infrastructure and substandard housing usually occupied by low-income families.

In 1900, just 13% of people lived in cities; by 1950, the proportion had risen by 16.7% to 29.7%. By the year 2000, the urban population had increased to about 2.8 billion (47.4% of the total), a



Source: United Nations, 2007

Figure 4. 9: The World's population will be predominately urban by the year 2005-2010.

steady rise of 17.7% within a period of 50 years, and a slight increase of just 1% over the first 50-year period. Figure 4.9 shows that in 2003, 3.2 billion of the world's 6.5 billion people, translating to 49.2%, lived in cities. By 2007, half of the world's population lived in urban areas. In 2015, it was estimated that around 4 billion of the world population of 7.2 billion (55.6%) lived in urban areas. It is forecast that this will increase to nearly 5 billion people, an estimated 61% of the projected 8.2 billion global population by 2030 while the rural population will regress

steadily (UN Commission on Population and Development, cited in George 2007). Thus the rural areas' loss is the urban centers' gain.

A UN (2007) report notes that around the middle of 2007, for the first time in history, the majority of people all over the world were living in towns or cities, signaling the arrival of what is referred to as the 'Urban Millennium' or the 'tipping point' as depicted in Figure 3.6. Furthermore, it is estimated that 93% of urban growth will occur in developing nations, with 80% in Africa and Asia. True to the assertion that urbanization generally occurs when the population shifts from rural to urban areas, the advent of innovative agricultural technologies and industrialization spurred Americans on to migrate to cities in droves during the 1800s. By 1920, over 50% of Americans lived in cities. This had many negative consequences. The rapid growth of cities like Chicago in the late 19<sup>th</sup> century and Mumbai in the 20<sup>th</sup> century can largely be attributed to rural-urban migration. This kind of growth is now commonplace in developing countries.

Urban development across the globe involving the agglomeration of people and materials (and resources) in urban centres has not only been rapid, but massive, especially in developing countries over the past four decades. This led to high population concentration in very large cities (Henderson, 2002). Taken together, 40% of the population in developing countries is living in urban areas, and this is expected to increase to 56% by 2030 (United Nations, 2002). The World Bank estimates that in the developing world, as much as 80% of economic growth will occur in towns and cities, which are reaching unprecedented sizes (Adebayo, 2001). From 1970 to 1995, urbanization in Africa increased by 15%, second only to Latin America. This gives rise to several problems in urban centers such as the overloading of existing infrastructure, traffic congestion, inadequate housing, the creation of slums, and pollution of all kinds (Olatubara, 2004), as well as scarcity, high land prices and the deterioration of the urban landscape.

Nigeria is perhaps one of the most urbanized countries in Africa and its urban centers date back to ancient times. The country had a population of 18.72 million in 1921. By 1951, it had risen to 30.4 million and it was 55.67 million in 1963. The provisional census data for 1991 indicated a population of 88.5 million. The population in most urban centers, which are generally unplanned, increased five-fold between 1952 and 1982. For example in the Southwest, Ibadan's population

rose from 625,000 in 1963 to 2.84 million in 1982. Using the 2.9% rate of population growth forecast by the National Population Commission, Federal Office of Statistics, National Planning Commission, and World Bank figures, the projected population for 2010 and 2015 is 6.23 million and 7.30 million, respectively. Similarly, in the Southeast, Enugu's population increased from 174,000 in 1963 to 850,000 in 1982, and is projected to reach 1,892,559 and 2,183,365, respectively in 2010 and 2015. Lagos has experienced the most rapid growth, from less than one million in 1963 to over four million in 1982 (NPC, 1998). With about 17 million inhabitants in 2002, it ranked among the world's 19 megacities that reached or exceeded 10 million people (Ojo-Fajuru 2012). By 2006, the Lagos census revealed a population of 18 million and in 2012 Campbell (2012) stated that the city was home to 21 million, making it the largest in Nigeria and indeed in Africa. With an annual population growth of 600,000 (10 times New York City/Los Angeles), the projected population for 2010 and 2015 is 20.19 million and 24.5 million, respectively (Olokesusi, 2011).

Nigeria had 56 urban centers (places with a population above 20,000) in 1953, making a total urban population of 3.2 million. By 1963, this had increased by over 228% with the emergence of 185 urban centers including Lagos, Ibadan, Port Harcourt and Kano, and a total urban population of 10.75 million. The rate of formation of new urban centers and the growth of existing ones has continued unabated (Olotuah, 2000). Like many developing countries, Nigeria has experienced phenomenal urbanization (Ogunnowo, 2005) with urban centers continuing to grow in size and number, and a rising proportion of the population residing in towns and cities (Ogunowo, 2002).

Ufuoma (2001) noted that Nigeria has up to 5,050 towns and cities with a population threshold of 20,000 or more scattered across the 774 local government areas (LGAs). Studies have shown that the proportion of Nigerians residing in urban centers increased from less than 15% in 1950 to 23.4% in 1975, 27% in 1980, and 43% in 1999 (UNCHS, 2000; UNDP, 2001). The United Nations (2011) explicitly put it that the percentage of Nigerian urban population steadily increased in 1950 (10.2%), 1970 (22.7%), 1990 (35.3%), 2000 (42.4%), 2010 (49.0%), 2011(49.6%); and projected to 52.1% and 60.8% in 2015 and 2030 respectively. The second half of the 20<sup>th</sup> century witnessed unsurpassed urbanization and the emergence of cities in various

zones. These include 10 cities with a population in millions, 18 with a population of more than 500,000 people, 78 with over 100,000, and 5,000 with over 20,000 people (Odumosu, 2004), a trend termed over-urbanization (Omuta and Onokerhoraye, 1986).

The World Bank predicted that the Nigerian urban population would increase to 100 million by 2010 (Jinadu, 2003). According to Ogunnowo (2005), three major factors account for the rapid increase in the number of people living in urban areas and the steady rise in the number of towns and cities. The first is the natural population increase in terms of the crude birth rate minus crude death rate. The second is the continuous geo-political restructuring and fragmentation of the country through the creation of states and LGAs in 1967, 1976, 1987, 1991, and 1996 and the third factor is the uninhibited influx of rural migrants into emerging urban centers.

The rapid rate of urbanization in developing countries, particularly Nigeria in the second half of the 20<sup>th</sup> century has resulted in palpable socio-economic and environmental problems in unplanned and hastily evolving urban centers where the population growth rate is alarming and is aggravated by ever-increasing rural-urban drift (Ojo-Fajuru, 2008). Even more worrisome is the horrendous state of the environment in almost all towns and cities in Nigeria, which is taking its toll on the urban fabric and the population. Ado-Ekiti is not exempted from this trend, where unprecedented population growth and struggles to survive appear to put strains on limited land resources, manifesting in public space contestation, degradation of the city environment, and reduction of living standards, which this study was conceptualized to restore.

#### **4.2.2 City development and urban land issues**

Urbanization has significant economic and environmental effects on cities and their surrounding areas. As city populations grow, the demand for goods and services of all kinds, and land for various human activities increases commensurately, pushing up prices, especially for land. As the population becomes concentrated in the city region, land prices rise astronomically, and the low-income working class may be priced out of the real estate market and pushed into less desirable but more affordable neighborhoods. Slum conditions are occasioned by the increasing number of people jostling for limited space, resources, facilities and amenities. Blighted areas and slums with substandard housing, derelict infrastructure and poor environmental conditions deplete urban aesthetics, liveability and property values.

Studies have revealed that low-income households, which account for 70% of the urban population, occupy only about 30% of the total residential land in Nigerian cities, while high- and middle-income households occupy 70%. This inequitable pattern of land use explains the prevalence of shantytowns and squatter settlements with concomitant environmental decay in the low-income residential districts (Onokerhoraye, 1995). Over-exploitation of natural resources and overstretched infrastructure and amenities are widespread among poor urban dwellers. In the Nigerian context, urbanization thus goes hand-in-hand with environmental degradation, which has adverse implications for land resources and development as it is the case in Ado-Ekiti. It is a major ideal of this research to close this gap and promote sustainable landscape and environment in the state capital.

#### **4.2.3 Planned industrial towns**

With the coming of the industrial revolution in the early 19<sup>th</sup> century and the response by reformers, pioneer planners, industrialists, and philanthropists, several planned industrial towns were built to alleviate the plight of industrial workers. According to Spreiregen (1965), this developed can be traced to France around 1776 when Ledoux designed a town called Chaux to be constructed in the open countryside between two villages, to house salt workers. He initially proposed a quadrangle of buildings and ample space for gardens enclosed in 1,000-foot square avenues lined with trees. In his first modification of the plan, the square concept metamorphosed into an ellipse, and in his final amendment, the ellipse was changed to a semi-ellipse with roads radiating from it into the hinterland. Ledoux inspired others to replicate his plan in other parts of the world. In Britain, the planned industrial town was pioneered by Robert Owen, a social reformer, who commenced construction of New Lanark Mill, an industrial village near Manchester in 1799. Owen aimed to create an acceptable worker community. He proposed a self-sufficient and non-exploitative community to accommodate about 800 to 1,200 people occupying at least 600 to 1,800 acres of land such that each community would have ample recreational and educational facilities. His innovative ideas were widely acclaimed and Owenite towns were established in other parts of England and the USA. They include New Harmony created by Owen's son in Indiana, Brook Farm in Massachusetts, and Salt Lake City, Utah (Spreiregen, 1965).

The desire to provide accessible and conducive accommodation for employees near factories led to the establishment of Port Sunlight in England, which was built by soap company W. H. Levers near Liverpool in 1887. The town was laid out on a 550-acre site of flat lowland penetrated by the sea, where buildings were staggered and set back from the road up to 20 feet, with large blocks, interior gardens and expansive play areas. Similarly, in 1889, Bourneville was laid out as a garden community near Birmingham by George Cadbury to house his workers in the Cadbury Chocolate Company (Spreiregen, 1965). It emphasized gardens and most residents proved to be enthusiastic gardeners. By 1905, the town had extended over 450 acres with 150 buildings and ample open space for greenery and recreation.

The first planned industrial town built in North America was a small mill village to accommodate textile workers in Georgiaville, Rhode Island in 1812. This was followed by another mill town erected in Harrisville, New Hampshire in 1816 by Francis Cabot Lowell, who, six years later, built another one he called Lowell in Massachusetts. A purely industrial town for a factory and workers named Pullman was built in Illinois in 1879, and by 1890, the population of the town had risen to 11,000. Gary, Indiana - a purposely-built city - was constructed by a steel corporation in 1906, while Kohler, Wisconsin is also a product of 19<sup>th</sup> century planned industrial town initiatives (Spreiregen, 1965).

Another landmark achievement was recorded in France when the construction of Vesinet commenced in a former hunting forest in 1859, based on the design of Olive, an architect. His plan synthesized classical French landscape architecture and English park ideals to create an artistic web of axial streets in the residential areas, interspersed with large winding strips of greenery. This spectacular concept was the forerunner to the design of the garden city, which was to emerge about half a century later. The idea of planned industrial towns reached Germany in 1863 when some residential communities were built within the vicinity of the Krupp factories in Essen. By the first quarter of the 20<sup>th</sup> century, *Siedlungen*, the so-called worker colonies had up to 25,000 dwelling units in some 12 communities (Spreiregen, 1965).

Tony Garnier, French architect and scholar idealized the concept of the industrial city when he produced a design called *Une Cite Industrielle* from 1901 to 1904. The hypothetical industrial city on an imaginary site of a high plateau and level valley was proposed to have a grid-iron patterned residential area with 100 feet (30.48 meters) by 500 feet (152.40 meters) blocks on the plateau, overlooking the industries that would be built in the valley. He projected the population of the city, together with the existing town, at about 32,000. The city plan was not only detailed, but segregated into compatible zones, and provided with urban facilities and utilities such as a dam for water supply and hydro-electricity power generation. Other features include a hilltop hospital, civic centre, bakery, abattoir, sewage plant, and ample grounds for testing cars and airplanes. The industrial areas, smelting factories and mines were located at considerable distance and separated from the residential areas and existing town by meandering overland roads and tunneled railroads. In later years, elements of Garnier's plans, which had hitherto remained on paper, were concretized by Dutch architect, J. J. P. Oud, in a small worker settlement he established near Rotterdam, The Netherlands (Spreiregen, 1965).

#### **4.2.4 The park movement**

Spreiregen (1965) notes that, the American park system that was made famous by Fredrick Law Olmsted, stands out in specific areas of urban design. The American Planning Association (2006) states, that, the American theory of urban planning has its roots in Olmsted's design. He argued that:

the growth of cities was inevitable and fundamentally beneficial to society, and that the incorporation of parks and natural landscapes into the urban fabric could counter many of the negative effects of this growth. (American Planning Association, 2006)

Having entered the limelight as a social reformer through his articles on slavery, Olmsted publicized his views on the increasingly rapid urbanization of the United States, where migration led to the urban population doubling between 1840 and 1860. This resulted in improper use of land and human resources, formless cities, and moral decadence. As a farmer and admirer of the landscaped English estate, he believed that landscape design was the perfect antidote to these social maladies, and asserted that the "urban park could be an aid to social reform, giving the downtrodden city dwellers uplifting communion with nature" (Spreiregen, 1965).



Olmsted, who placed high value on nature, explored the possibility of utilising best practices in evolving landscape design to relieve the stress inherent in crowded cities and thereby promote naturalness in societal interaction (American Planning Association, 2006). He was able to operationalize this theory with the design he co-produced with English-born architect, Calvert Vaux entitled the *Greensward Plan* to improve and expand Central Park in New York City.

(Source: [http://en.wikipedia.org/w/index.php?title=Central\\_Park&oldid=599979723](http://en.wikipedia.org/w/index.php?title=Central_Park&oldid=599979723) Retrieved 2014-03-22).  
Figure 4. 10: Panoramic view of Central Park in Manhattan, New York, naturalising the cityscape.

It won a landscape design competition in 1858. The reconstruction of the park commenced thereafter, progressed during the American Civil War, and was completed in 1873, by which time more than four million trees, shrubs and plants representing approximately 1,500 species had been transplanted to the park (Spreiregen, 1965; American Planning Association, 2006; Central Park Conservancy, 2010), injecting lush greenery at human scale into the intensively built city environment as depicted in Figure 4.10 above.

Activities in Central Park are as diverse as its numerous components, sections, landscaping and facilities. They include birding, boating, carriage horsing, pedicabbing, and sports like running, cycling, inline skating, ice skating, rock climbing, a carousel for merry-go-rounds, and some 21 playgrounds for children. Entertainment abounds in theaters, zoos, and an aquarium. The park initially opened in 1857 on 778 acres (315 ha) of city-owned land and currently occupies 840.01 acres (399.94 ha). Central Park is a reputable urban park in Manhattan, New York City as it

provides avenues for residents and visitors to ‘escape’ from the hustle and bustle of teeming city street life as seen in Figure 4.11. It is the most visited urban park in the US with approximately 35 million visitors annually (American Planning Association, 2006; Central Park Conservancy, 2010).



(Source: <http://google.com.ng/images>, Retrieved 2014-03-22).

Figure 4. 11: Central Park, New York, where visitors can ‘escape’ from the city and even sunbath.

Central Park, a classic of landscape practice, has been designated a national historical landmark since 1962 and it is currently managed by the Central Park Conservancy under contract with the city government. As a non-profit organization, the Conservancy contributes 83.5% of Central Park's \$37.5 million annual budget, and provides employment for 80.7% of maintenance staff in the park (Central Park Conservancy, 2010). The success story of Central Park motivated Olmsted to embark on the design of many other large parks not only within the vicinity of New York City, but all over the United States and beyond. Such include Prospect Park in Brooklyn, New York City, Belle Isle in Detroit, Mount Royal Park in Montreal, Canada, and a host of other parks in Boston, Buffalo, Chicago and San Francisco, as well as his influential role in legislation of Yosemite Park being proposed for Yosemite Village in California. It is noteworthy that Olmsted scarcely used formal and symmetrical elements as he preferred irregular water bodies, curvy lawns and meandering routes to evoke ‘a feeling of country’ in the city park. He advocated

futuristic and dynamic plans that ensure ample interactive urban design spaces to enable cities meet the need of its inhabitants and future generation (Spreiregen, 1965; American Planning Association, 2006).

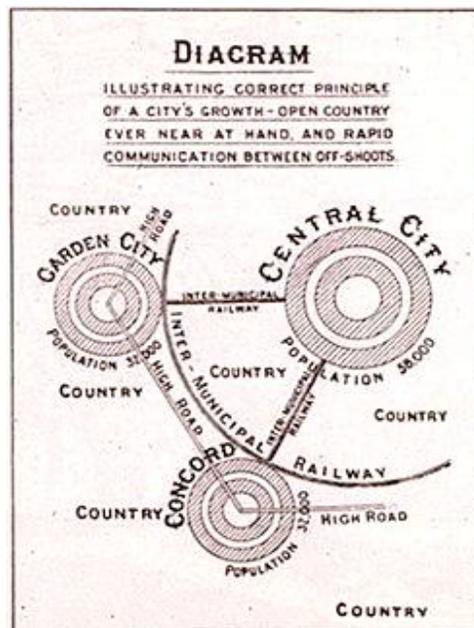
The collection of Olmsted's thoughts, views, feelings, aspirations and dispositions towards Comprehensive Park planning culminated in his book titled *Public Parks and the Enlargement of Towns* published in 1870. Just as Olmsted had many American intellectuals like Henry David Thoreau and Ralph Waldo Emerson as contemporaries, so he did have renowned urban park designers such as Charles Eliot, George Kessler and Jens Jensen as followers. These urban landscape and park enthusiasts propagated the ideals and works of Olmsted in Boston park system, Kansas City park system, and Chicago's original park system respectively, thereby bequeathing the legacies of pleasurable parks and open spaces on American cities, and advanced the frontiers of the park movement (Spreiregen, 1965). The influential echo of Olmsted's work soon resounded farther beyond the shores of North America. In France, Spreiregen, (1965) observes that Alphand, a Haussmann landscape architect was fondly nicknamed 'the French Olmsted' on the strength of localizing Olmsted's urban park development initiatives. Curiously, Daniel Schreber, a German physician and educator adapted Olmstedian landscape characters and came up with an interesting design consisting series of small gardens as children playgrounds called , which eventually proved useful for adult vegetable garden. Invariably, the concept of urban playground gained ground in Europe.

#### **4.2.5 The garden city response**

The conceptual roots of the garden city movement, initiated in 1898 as a method of urban planning in the United Kingdom, are deeply embedded in the work of its founding father, Sir Ebenezer Howard. He conceived garden cities as consciously planned, self-sustained communities proportionately partitioned into residential, industrial and agricultural areas, with each area separated by green space and surrounded by greenbelts.

Having read the utopian novel by Massachusetts industrialist Edward Bellamy titled *Looking Backward*, and Henry George's publication, *Progress and Poverty*, Howard was deeply moved by overcrowding in London, his city of abode, and published his book, *Tomorrow: a Peaceful*

*Path to Real Reform* in 1898. Reissued in 1902 as *Garden Cities of Tomorrow*, it raised the question: “Given 6,000 acres (2,428.20 hectares) of land, how shall we endeavour to make the best use of it?” He proposed decongesting the central city by constructing a garden city on the 6,000 acres (2,428.20 hectares) to house 32,000 people. The plan, illustrated in Figure 4.12, was based on a concentric concept with six radial boulevards, 120 ft (37 m) wide, radiating from the



(Source: Ebenezer Howard, 1902)

Figure 4. 12: Ebenezer Howard’s schematic diagram of central and garden cities.

center, with ample open spaces and public parks. He proposed the development of another garden city nearby when the first had reached its full population, culminating in a cluster of several garden cities as satellites of a central city of 50,000 people, linked by road and rail (Goodall, 1987; American Planning Association, 2006).

As shown in Figure 4.13, Howard depicted the attractions of the town, the countryside, and the ideal combination of the two in the form of three magnets which addressed the question “Where will the people go?” The choices were “Town”, “Country” or “Town-Country”. He portrayed the “Town-Country” location of garden city as being the better of the two worlds by blending the advantages of the rural setting with those of the urban area. He declared that:



Letchworth's success prompted the establishment of another garden city, Welwyn in 1920, which recorded resounding success in its design and finances. The Welwyn design, produced by architect Louis de Soissons was more compatible with Howard's original concept (Spreiregen, 1965; American Planning Association, 2006). On the other hand, Hall and Ward (1998) point out that due to its relative nearness (20 miles; 32.19 kilometers) to London, Welwyn fell short of being self-sustaining, and became a satellite town that supported the British film industry.

Letchworth and Welwyn were the only garden cities in England until the mid-20<sup>th</sup> century when concerted effort by the movement rekindled the need for vibrant urban planning policies that culminated in the New Town Movement (Hall & Ward, 1998). The long-term benefits of the garden city concept form the pivot of post-World War II planning in Britain, which prompted the government to preclude development from designated green belts around London suburbs. This led to the construction of satellite cities such as Hemel Hempstead outside the conservation zone (American Planning Association, 2006), maintaining an expansive space of permanent greenery as a buffer around the metropolitan area.

In the US, Howard's garden city ideas came to fruition as early as 1913, about the same time as the establishment of Welwyn, when Forest Hill Village was constructed in Queens, New York. The planned 'demonstration' community was purpose-built by the Russel Sage Foundation to display an ideal, well-designed environment for middle-class housing. The Federal Government also applied the fledging garden city principles at Yorkship Village in Camden, New Jersey, and Hilton Village in Newport News, Virginia during World War I to accommodate defense workers (American Planning Association, 2006).

In 1928, another major landmark development was established in New Jersey when Radburn was built and designed by architects Henry Wright and Clarence Stein. Dubbed the 'Town for the Motor Age', it used the curvilinear concept to create arterial roads serving superblocks, which form large residential units that exclude automobile traffic in favour of pedestrian comfort and safety. The superblocks enclose open, green recreation areas, which are interconnected by greenways, pathways and pedestrian ways as pedestrian precincts that provide access to schools, and shopping, civic, and other communal centers in the community. Houses arranged as cul-de-sac clusters are accessible to automobiles on the short dead-end roads that open onto the main

circulation arteries for through traffic. Originally planned to accommodate 25,000 people, Radburn was partially completed as the Great Depression snuffed out financial resources midstream (Spreiregen, 1965).

Shortly after Radburn, and despite the Depression, the US Government commissioned a Resettlement Administration, which combined the garden city and Radburn principles to develop three 'greenbelt' towns, beginning in 1935, each with 4,000 inhabitants, namely Greenhill, Ohio; Greendale, Wisconsin; and Greenbelt, Maryland, while the fourth town proposed for New Jersey never saw the light of the day. Each town had superblocks segregating pedestrian and vehicular traffic, and was embellished with green spaces, and completely encircled by greenbelt as in Howard's model (American Planning Association, 2006).

Further examples of garden-city-motivated development in the US are the Woodborne neighborhood in Boston; Chatham Village, Pittsburgh; Garden City, New York; Sunnyside, and Jackson Heights in Queens; and Buckingham in Arlington County, Virginia. Others include the Lake Vista neighborhood in New Orleans; Norris, Tennessee; Baldwin Hills Village in Los Angeles; and the suburbs of Parma and Shaker Heights in Cleveland (Horley, 1998).

It is clear that the garden city ideals influenced urban planning in other parts of the world. In Canada, Don Mills and Walkerville, which are integral parts of Toronto City in Ontario, are partial garden cities. The historic town site of Powell River in British Columbia which has been accorded the status of a national historic site was built in response to the Garden City Movement (The Townsite Heritage Digester, 2013).

Argentina is believed to have built the first garden city in South America. This is Ciudad Jardim Lomas del Palomar, so declared by Carlos María della Paolera, a renowned Argentinian Professor of Engineering, who founded the 'Día Mundial del Urbanismo', or World Urbanism Day. In Peru, the longstanding tradition in urban design was rejuvenated in its architecture, and in 1966, the garden city concept was adopted to build the 'Residential San Felipe' in the Lima district of Jesus Maria (Henao, 2010). Sao Paulo, Brazil perhaps has the most neighborhoods planned as garden cities. These include Jardim America, Jardim Europa, Alto da Lapa, Alto de Pinheiros, Jardim da Saude and Cidade Jardim, which is the Portuguese translation of garden

city. Similarly, the capital of Brazil's Goiás State, Goiania was built as a garden city (World Heritage Encyclopedia, 2016). In Australia, garden city principles were adopted in the planning and design of Colonel Light Garden's suburbs in Adelaide South (Local History Service and Heritage Research Centre 2005). Sunshine town was also built based on similar principles of the Garden City movement in what is now the suburb of Melbourne in Victoria (Victorian Heritage Database 2017).

During the transition from the colonial to post-colonial era, especially in the early part of the 20<sup>th</sup> century, garden city principles had considerable influence on the design of nations' capitals across the globe. Notable among such capitals is New Delhi, which was newly designed and developed after World War I by the colonial masters to take over as the new capital of British India. In Australia, Canberra was designed and built along garden city principles in 1913 by colonialists as the capital of Australia. In similar manner, Quezon City was founded in 1939 to become the capital of the Philippines from 1948 until independence in 1976, when the seat of power moved to Manila. Many colonial hill stations were also based on the garden city model, prominent among which are Da Lat in Vietnam, and Ifrane in Morocco, which were established in 1907 and 1929, respectively. The new plan for Thimphu, the capital city of Bhutan initially adopted the principles of Intelligent Urbanism in response to the fragile ecology, but eventually adopted sustainable concepts as a contemporary response to the garden city concept (World Heritage Encyclopedia, 2016).

Prolific Scottish writer, planner and urbanist, Sir Patrick Geddes who laid out some 50 cities in India and Palestine, was privy to Howard's concept (Spreiregen, 1965) and the Garden City Movement influenced his design for Tel Aviv, Israel in the early 1920s during the British Mandate for Palestine (Webberley, 2008).

The influence of the Garden City Movement spread to the African continent in the development of Pinelands suburb in Cape Town, South Africa. According to Rosenthal (1949), the development of Pinelands is unique in the annals of South African history as it was the first consciously planned settlement to be established in the country. After World War I, a Cape Town city councilor, Richard Stuttaford, had an opportune encounter with Ebenezer Howard and

was persuaded that his garden city ideas could be applied to solve post-war problems (Cuthbertson n.d.).



(Source: <http://www.pelterlet.co.za> Retrieved 2014-03-28)

Figure 4. 14: Foundation Stone of Pinelands

The Uitvlugt housing project, later named Pinelands (landmarked with the pillar stone in Figure 4.14), was developed on the outskirts of Cape Town in 1921 and emerged as the first garden city in Africa.

In the Nigerian context, no town or city has fully embraced Howard's garden city principles. Port Harcourt, which is fondly referred to as the 'Garden City' was not initially planned based on these tenets. The present day River State capital evolved from farmlands of the Diobu village group of Ikwerre, an Igbo sub-group (Onwuejeogwu, 1981), and was known in the native language as *Diobu* (Njoku, 2008; Isichei, 1976), *Iguocha* (Walker, 1959; Jaekel, 1997), the corrupt form of *Ugwuocha* (Okafor, 1973; Ohadike, 1994; McCall, 2000), until 1913, when a port was created to export coal from Enugu mines (Chief Secretary's Office, 1933). It was renamed Port Harcourt by Sir Fredrick Laggard (who later became the first Governor General of Colonial Nigeria) after Lewis Vermon Harcourt, the colonial Secretary of State (Walker, 1959; Okafor, 1973).



(Source: <http://www.phgardencity.files.wordpress.com/2012/10/port-harcourt> Retrieved 2014-03-28).

Figure 4. 15: Port Harcourt literarily known as the ‘Garden City’ for its green landscape, rather than the influence of Howard’s Garden City movement on its urban morphology.

Founded in 1913 (Hudgens and Trillo, 2003), the building of the port town started in earnest (Njoku, 2008), but not in line with any recognisable pattern or documented plan. Between the late 1950s and after the civil war in the 1960s, the development of the petroleum industry led to rapid urbanization and modernization (Hudgens and Trillo, 2003) in the fledging commercial centre and industrial area, paving the way for the unplanned absorption of surrounding villages such as Oroworukwo, Mkpogua and Rumuomasi (Wolpe, 1974; Izeogu, 1989). The city comprises of the former European quarters now called the Government Reservation Area (GRA) and new layout areas. The Greater Port Harcourt City Development Authority (2011) notes that Port Harcourt is known as the ‘Garden City’ because of its well-manicured green landscape, illustrated in Figure 4.15, indicating that this tag is a mere nickname (Hudgens and Trillo, 2003; Williams, 2008) that has nothing to do with Howard’s ideals.

Abuja, the purpose-built capital city in the Federal Capital Territory (FCT), is deliberately located in the geographical center of the country. Ubani, Mba and Ugwu (2014) note, that the Akinola Aguda Panel decided that this was the most appropriate site for the seat of the Federal

Government of Nigeria that was moved from Lagos to alleviate the land use and transportation problems emanating from its dual role as the seat of the Federal and Lagos State governments. It also offers maximum flexibility as a melting pot for a broad range of socio-economic groups and cultural affinities.

Although Abuja is a planned city (Murray, 2007) with provision in the Master Plan for the development of adequate recreational and green areas, the plan was not inspired by Howard's garden city concept. Rather, International Planning Associates (IPA) appointed by the Federal



(Source: the Federal Capital Development Authority (FCDA), Abuja, FCT.)

Figure 4. 16: Plan showing greenery in the Central Area of Phase I of the City.

Government of Nigeria in 1979 to prepare the Abuja Master Plan utilized the Neighbourhood Concept and provided for residential neighborhoods served by common facilities for a threshold population of 5,000 people. A group of neighborhoods forms a district, with each provided with a district center offering facilities such as schools, a hospital, shopping center, fire station, etc. (Jibril, 2010). As with Port Harcourt, any reference to Abuja as a 'garden city' is not an indication that the city was planned in strict accordance with Howard's garden city principles,

but alludes to its green areas, parks, gardens, open spaces, and conservation areas. Jibril (2010) highlights that the Master Plan allocates 1,260 hectares (17.80%) out of about 7,076 hectares total land area for Phase I of the City for squares, gardens, parks, open spaces and greenery (partially depicted in Figure 4.16).

#### **4.2.6 The city beautiful movement**

In the late 19<sup>th</sup> century, it dawned on many Americans that the state of the environment in towns and cities was generally unwholesome, worrisome and unattractive. This prompted concerned citizens to organise beautification societies across the country. These groups embarked on taming the seemingly wild streetscape to restore sanity to the urban fabric by greening bare town squares, removing tangled overhead cables, paving sidewalks, and furnishing underdeveloped city parks, among other environmental salvaging missions. These noble and patriotic initiatives caught the attention of Charles Mulford Robinson who lent his support by capturing the various selfless efforts in his book titled: *The Improvement of Towns and Cities* published in 1901(American Planning Association, 2006).

In the same year, a national conference on city beautification was convened by the American Institute of Architects in Washington D. C. Subsequently, the McMillan Commission was established, comprising of notable people such as Fredrick Law Olmsted, Daniel Burnham and Augustus St. Gaudens, with a mandate to plan the improvement of central Washington. Having completed a fact finding tour of Europe, the Commission came up with a “grand classical concept of landscape architecture” that enlivened the existing L’Enfant city plan, and thereby contributed to the take-off of the City Beautiful Era (Spreiregen, 1965).

A number of improvement organizations came together to form the American Civic Association in 1904 to advance the city beautification movement throughout the country. Civic centers were redesigned, and many ‘city beautiful’ plans were drawn up including Burnham and Bennett’s plans for San Francisco and Chicago in 1907 and 1909, respectively, as well as Bennett, Bogue, and other urbanists’ plans for Harrisburg, Pennsylvania; Portland, Oregon; Seattle, Washington; and other cities which were mostly sponsored by private parties (American Planning Association, 2006).

This study keys into the ideals of the planned industrial towns, embraces the tenets of the park movement, adapt the principles of the garden city response, inculcates the intervention initiatives of the city beautiful movement and explores placemaking potentialities to resuscitate the seemingly ailing environment of the capital city of Ekiti State with pleasurable spaces and exciting places for the attainment of clean, liveable, equitable and sustainable urban landscape.

### **4.3 Sustainable city or eco city and practical achievements**

Sustainable development, defined as development that does not jeopardize the ability of future generations to meet their needs, while satisfying those of the present generation (WCED, 1987) is universally accepted as a desirable goal. Sustainable human settlement was one of the foremost principles underlying the Millennium Development Goals (MDGs) signed by world leaders in 2000, as well as the agenda of the World Summit on Sustainable Development held in 2002. A sustainable city or eco-city has been defined as a city designed with consideration of environmental impact, inhabited by people dedicated to minimizing the required inputs of energy, water and food, and waste such as heat, air and water (Register, 1987). Shmelev and Shmeleva (2009) confirm that the term ‘ecocity’ was first used by Register (1987), and connotes the enhancement of the “wellbeing of citizens and society through integrated urban planning and management that fully harnesses the benefits of ecological systems, and protects and nurtures these assets for future generations” (Suzuki, 2010, p.xvii). It was also noted in another study that:

[t]he eco-city is an umbrella metaphor that encompasses a wide range of urban-ecological proposals that aim to achieve urban sustainability. These approaches propose a wide range of environmental, social, and institutional policies that are directed to managing urban spaces to achieve sustainability. This type promotes the ecological agenda and emphasizes environmental management through a set of institutional and policy tools. (Jabareen, 2006, pp. 46-47)

The distinctive attributes of ecological cities lie not only in the conscious effort to value their ecological assets and foster functional interrelationships with natural systems, but in fostering harmonious interaction with regional and global ecosystems. The practical achievements of these ecological cities were possible through various means, such as agricultural plots (small-scale/private or larger scale) within the city (suburbs or center). This reduces the food miles from field to fork. Cities also create economies of scale that make renewable energy sources, such as wind turbines, solar panels, or biogas created from sewage viable. Moreover, there are various

methods to reduce the need for air conditioning (a massive energy demand), such as planting trees and lightening surface colors, natural ventilation systems, an increase in water features, and green spaces equaling at least 20% of the city's surface. These measures counter the 'heat island effect' caused by an abundance of tarmac and asphalt, which can make urban areas several degrees warmer than the surrounding rural areas, as much as six degrees Celsius during the evening(The Sino-Singapore Tianjin Eco-city Administrative Committee, 2011).

Other means include improved public transport and an increase in pedestrianisation to reduce automobile emissions. This requires a radically different approach to city planning, with integrated business, industrial, and residential zones. Roads can be deliberately designed to make driving difficult. There is also optimal building density to make public transport viable but avoid the creation of urban heat islands. Urban sprawl is decreased by allowing people to live closer to the workplace. Since most people work in the city, downtown, or in an urban center, suburbanites need to be persuaded to change their attitude to inner-city areas. One of the new ways to achieve this is the solutions offered by the Smart Growth Movement. Contemporary eco-friendly, innovative designs and measures include green roofs, zero-emission transport and buildings, sustainable urban drainage systems (SUDS), energy conservation systems/devices, xeriscaping - garden and landscape design for water conservation - and Key Performance Indicators (KPIs), a development and operational management tool providing guidance, and monitoring and valuation modalities for city administrators (The Sino-Singapore Tianjin Eco-city Administrative Committee, 2011).

Despite the achievements in ecological cities noted above, there is a paradigm shift from eco cities to eco<sup>2</sup> cities with the World Bank spearheading this move. In 2009, when the new World Bank Urban Strategy was launched in Singapore, the Eco<sup>2</sup>City initiative was incorporated as an essential component to complement earlier achievements by development agencies in mitigating climate change by inculcating sustainable development. The Eco<sup>2</sup> Cities Initiative is designed for global application. It is described as a rare avenue to “plan, develop, build and manage cities that are simultaneously more ecologically and economically sustainable... [t]he Eco<sup>2</sup> Cities Initiative

appears at a critical historic juncture in relation to this challenge and opportunity” (Suzuki et al, 2010, p. xv).

This novel development is a response to the challenges and opportunities inherent in the unprecedented rate and scale of urbanization that create grave socio-economic and environmental problems such as climate change, congestion, pollution, sprawl, and the rapid growth of slums, which are most rampant in developing countries. The Eco<sup>2</sup>Cities Initiative rests on four principles which, according to Suzuki et al (2010), are widely applicable and critical to success. They include:

(1) a city based approach enabling local governments to lead a development process that takes into account specific circumstances, including the local ecology; (2) an expanded platform for collaborative design and decision making that accomplishes sustained synergy by coordinating and aligning the actions of key stakeholders; (3) a one system approach enabling cities to realize the benefits of integration by planning, designing, and managing the whole urban system; and (4) an investment framework that values sustainability and resiliency by incorporating and accounting for life cycle analysis, the value of all capital assets (manufactured, natural, human, and social), and a broader scope of risk assessments in decision making. (Suzuki et al, 2010, p.3)

These principles are interrelated and mutually supportive, thereby positioning the Eco<sup>2</sup> Cities initiative to achieve the tripartite goals of social, economic, and environmental sustainability, which are the purview of this study centered on attaining socially inclusive, economically viable, and environmentally sustainable urban landscape in Ado-Ekiti through the retrieval of encroached public spaces for greening the city.

#### **4.4 Cities in Nigeria focusing on Ado-Ekiti, Ekiti State capital and the case study area in the South-west Geo-political Zone**

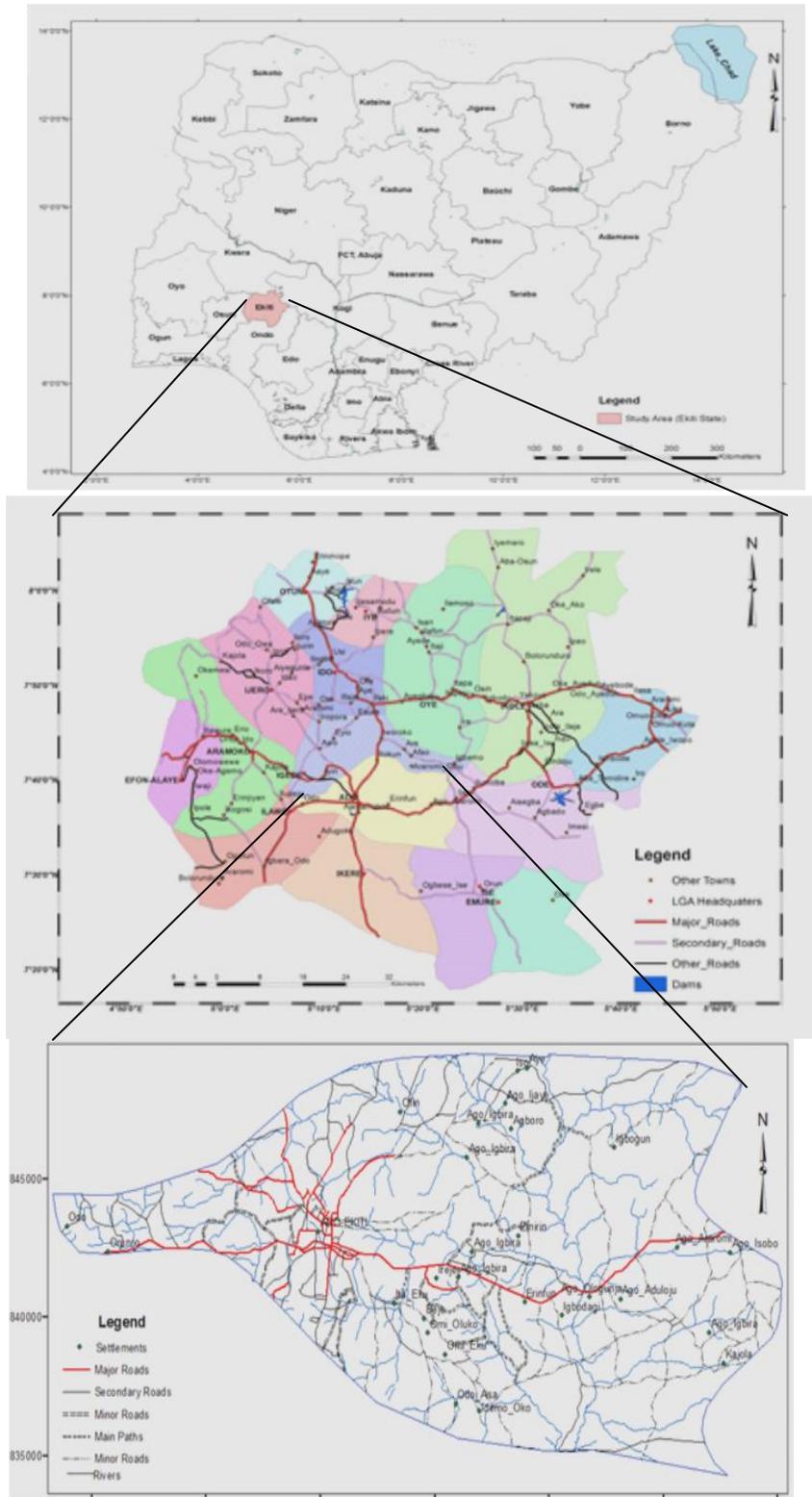
Having consolidated on the amalgamation of the Northern and Southern Protectorates in 1914, the Federal Republic of Nigeria emerged as an autonomous country in the West African sub-region when it attained independence in October 1960. It shares boundaries with Chad and Cameroon in the east, the Republic of Benin in the west, Niger in the north, and bounded in the south by the Atlantic Ocean along the Gulf of Guinea. The country has undergone subdivision into regions and states six times from three regions at independence.

This multiplicity of states, even as more are being agitated for, is an indication of chequered historical antecedents, complexity, and the heterogeneity of the federating units, which pose administrative challenges at the three tiers of government. Nigeria is currently made up of 36 states, including Ekiti State, while the Federal Capital Territory, Abuja is autonomous. The states are further sub-divided into 774 LGAs. All the states and LGAs have towns and cities designated as capitals and headquarters, respectively. Some cities double as the state capitals and LGA headquarters, such as Sokoto, Katsina, Kano, Maiduguri, Kaduna, Jos, Minna, Calabar, Uyo, Port Harcourt, Owerri, Enugu, Benin City, Asaba, Ikeja, Ibadan and Ado-Ekiti, the study area, thereby making the Ekiti State capital one of the nodal points of population increase and rapid spatial development.

The states are regrouped into six geopolitical zones for easy administrative reference and fair representation on the basis of the geographical spread of the constituent ethnic nationalities. These are: North West, North East, North Central, South East, South West, and South South. The old Western Region of Nigeria was comprised of Lagos, Ogun, Oyo, and Ondo states from whence the present day Lagos, Ogun, Oyo, Osun, Ondo and Ekiti states emerged; they now constitute the South West Geo-political Zone.

The geographical location of Ekiti State as well as Ado-Ekiti in the local government setting is shown in Figure 4.17. Cities and towns in this Zone, which are either state capitals or LGA headquarters, or a combination of the two, are listed in Table 4.1.

With the amalgamation of 1914, Ekiti, Owo, Ondo and Okitipupa were placed under the newly formed Ijebu Province in the old Western Region. In 1916, the four divisions were consolidated into the Ondo Province (Adebayo and Adefolalu, 1993; Ebisemiju, 1993). In the state creation exercise of 1976, Ondo Province became Ondo State with Akure as the capital based on its geographical centrality, despite the fact that Ado-Ekiti was the largest town in the Ondo Province according to the 1963 census figures.



Source: Department of Survey and Geo-informatics, Federal Polytechnic, Ado-Ekiti, 2015.  
 Figure 4. 17: Ado-Ekiti in the local, state and national settings.

<b>State</b>	<b>Cities and towns (state capitals in bold type)</b>
<b>Lagos</b>	Lagos Metropolis encompassing the Islands of Lagos such as Lagos Island, Ikoyi, Victoria Island, Eko Atlantic City [under construction]; Lagos Mainland districts including Ebute-Meta, Apapa, Surulere, Yaba and <b>Ikeja</b> ; and Greater Lagos including Mushin, Maryland, Somolu, Oshodi, Oworonsoki, Isolo, Ikotun, Agege, Iju, Ishaga, Egbeda, Ketu, Bariga, Ipaja, Ajah and Ejigbo, Badagry, Ojo, Ikorodu, Epe, Akodo.
<b>Ogun</b>	<b>Abeokuta</b> , Ijebu-Ode, Shagamu, Ijebu-Igbo, Ikene, Odobgolu, Ota, Ifo, Ilaro, Ayetoro, Eruwa, Isara, Imeko.
<b>Oyo</b>	<b>Ibadan</b> , Oyo, Ogbomoso, Shaki, Iseyin, Igboho, Igbetti, Kishi, Igbo-Ora, Egbeda
<b>Osun</b>	<b>Oshogbo</b> , Ile-Ife, Ede, Ilesha, Iwo, Ijebu-Ijesha, Iragbiji, Ikirun, Otan-Ayegbaju, Ila-Orangun, Ejigbo, Ikire, Gbongan, Modakeke, Ifetedo, Ipetumodu, Apomu.
<b>Ondo</b>	<b>Akure</b> , Ondo, Owo, Idanre, Ifon, Ikare, Oka-Akoko, Isua, Oke-Agbe, Iju-Itaogbolu, Igbara-Oke, Bolorunduro, Ile-Oluji, Ore, Okitipupa, Ode-Irele, Igbokoda, Gbekebo
<b>Ekiti</b>	<b>Ado-Ekiti</b> , Ikere, Ikole, Ilawe, Igede, Aramoko, Ijero, Efon-Alaaye, Otun, Ido, Oye, Omuo, Ode-Ekiti, Ise, Emure, Eda-Oniyo.

(Source: Author's compilation from Nigeria Secondary School Atlas 2006 Macmillan Nigeria Publishers Ltd., p. 19)  
Table 4.1: Cities in the South West Geo-political Zone in the old Western Region of Nigeria.

In 1996, following vigorous and consistent agitation the old Ekiti Division was carved out of Ondo State to form Ekiti State with its capital located in Ado-Ekiti. The cities and towns in Ekiti State are shown in Table 4.1 as Ado-Ekiti, Ikere, Ikole, Ijero, Otun, and Omuo. Ado-Ekiti, the state capital and headquarter of Ado-Ekiti Local Government Area was the study area for this research project.

The purpose of the classification of cities and regions is to track the evolutionary antecedents of Ado-Ekiti, its geographical location on the world map, and its socio-political hegemony in the comity of state capitals in Nigeria as shown in Figure 4.17 above. It also enables an appreciation of the city's sphere of influence within Ekiti State and the South West Geo-political Zone in the country.

## CHAPTER FIVE

### THE ENVIRONMENT, URBANISM AND CHALLENGES TO SUSTAINABLE GREEN CITY LANDSCAPE

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#### 5.0 Introduction

This chapter examines the environment and space in the urban setting, the challenges of urbanisation such as global warming and climate change occasioned by devegetation, excessive hard landscaping and encroachment on public spaces, and the issues of transportation, movement lines, and management of solid, liquid and gaseous wastes that affect cleanliness, livability and environmental sustainability in the city. The relevance of public participation, public education and enlightenment, information dissemination and management to the provision, reclamation, reestablishment and maintenance of setbacks and open spaces in the city environment are also considered. The study aims to address these issues in order to promote green urbanism, growth and spaces, the green economy, space efficiency and cleanliness in the capital city of Ekiti State.

#### 5.1 The effects of urbanism on the state of city environment

The environment is not only humankind's surrounding; it also provides the medium through which daily activities take place. The man-environment interaction theory propounds that as much as the environment affects people, so too do they impact positively and negatively on it. In virtually every country of the world, people's ability to urbanize rural entities is changing the earthscape. In Nigeria, villages have metamorphosed into large urban centres and metropolitan areas through the agglomeration of human activities that change the environment partially or completely. This trend is observable in Ado-Ekiti where virgin land is continuously 'eaten up' by unplanned sprawl, which inundates the suburbs and degrades the environment. The problem tends to manifest in the form of indiscriminate removal of vegetative cover and exposure of the cityscape to direct tropical sunrays and glare, with concomitant effects on the local climate, urban comfort, health and liveability. Other offshoots of urbanisation such as increased production, distribution and consumption of goods, commercialization and contestation of urban public spaces, expansion of transportation routes requiring space and causing pollution, as well as people's exclusion and relative inertia on planning matters, pose serious challenges to building a sustainable green city environment. Achievement of the goals of sustainable landscape

development in Ado-Ekiti largely depends on the pragmatic tackling of these issues raised, which this study aims to achieve.

Ogboi (2014) rightly claims that developing countries' incapacity to deal with unparalleled urbanization remains a major problem. As at 2007, half of the world's population lived in urban areas (UN Commission on Population and Development, cited in George, 2007) while in 2015, the urban population rose to 55.7% and is expected to reach 52% in 2020 (UN-Habitat, 2001; UNDP, 2003), 60% in 2030 (Boundless, 2016a) and 67% in 2050 (UN-Habitat, 2001; UNDP, 2003). Notably, about 75% of global population growth currently occurs in developing countries (Ogboi, 2014), leading the United Nations (2007) to predict that 93% of urban growth takes place in these economies, with Africa and Asia accounting for 80%. This growth trend is typical in Nigeria, which is one of the most urbanized countries in Africa (NPC, 1998). Olotuah (2000) noted the persistent emergence of new urban centers and the uncontrolled expansion of existing ones.

The implication of the foregoing scenario is spontaneous urbanization uncontrolled by urban planning and commensurate physical and socio-economic development. The World Bank (2003) submits that many residents in Nigerian cities live in abject and insanitary conditions without water and electricity. Jeppesen, Andersen and Madsen (2006) observe that some settlements occupy encroached land, while others are built in places that are not suitable for human habitation. Rakodi (2006) contends that this crisis is due to rapid population increase, weak governance, faulty land administration, poor service delivery and acute infrastructure collapse. The result is deteriorating urban environmental conditions manifest in the proliferation of illegal structures (Ogboi, 2014) as is the case in Ado-Ekiti.

The proliferation of illegal developments stems from the government's failure to provide meaningful employment opportunities, neglect of the informal economy, and the acute shortage of efficient basic services and infrastructure in urban areas. The informalization of the city and resultant chaotic development and expansion (Heintz & Pollin, 2003; UN-Habitat, 2009), is the cumulative effect of survival instincts given the reality of the nation's faltering economy. The environmental effects of uncontrolled land use development (Ogboi, 2014a), include a debased

cityscape, poor aesthetic quality, and risks to both lives and property. In most cases, informal development involves uneconomic, inequitable and inefficient space usage. Rakodi (2006) notes, that the government either ignores illegal structures, or opts to control them through demolition. Since most of these informal developments encroach on ecologically sensitive areas, open land and public spaces such as setbacks to roadways, utilities and water bodies in Ado-Ekiti, this study supports the reclamation of illegally occupied land and public spaces in order to create a green city and ensure equitable access to land usage.

The unsightly urbanscape that is typical of Nigerian cities like Ado-Ekiti is thus due to a lack of planning or badly implemented plans. Ogboi (2014a) notes that the results include disorderly and formless neighbourhoods; poor or lack of access to basic services; the lack of a good road network due to poor surfacing, blockage by structures, refuse heaps and perennial floods; a highly incompatible land use mix, with commercial and industrial activities in residential areas; energy inefficiency that increases the cost of living; an insanitary environment and pollution of all kinds; as well as environmental degradation, damage and risks of disaster. This study aims to fill the gaps between the brown and the green agenda by redressing poor planning and faulty implementation in order to stem the tide of global warming and climate change and thereby avert avoidable calamity in the Ekiti State capital and create a role model for other Nigerian and African cities.

## **5.2 Sources and effects of global warming and climate change on cities, urban liveability and environmental sustainability**

Global warming and climate change describe the observed rise in the average temperature of the earth's climate system and its associated effects over the past century. Majority of scientists agree that global warming is mainly caused by increasing concentration of greenhouse gases and other anthropogenic activities (Intergovernmental Panel on Climate Change [IPCC] 2014) rather than natural sources. It is the increase in the average measured temperature of the earth's near-surface air and oceans since the mid-20<sup>th</sup> century, and its projected continuation (Biosphere Capital, 2008).

Population is strongly associated with global warming induced by climate change, as it threatens not only local wild life but indigenous populations whose surroundings are changing rapidly. While populous countries like China and India have realized the need to do more with respect to global warming, rich countries bear responsibility for their accumulated emissions in the atmosphere over a long period causing trans-boundary pollution, inducing global warming that triggers climate change. Global ecological change caused by global urbanism is likely to reshape cities and their infrastructure. (Hodson and Marvin, 2010).

Asani (2014) opines that global warming is also presumed to be a manifestation of crowded urban space, exemplified by poor air quality occurring within urban housing units deriving from the surrounding poor air quality. It is asserted that the general atmospheric condition of Nigerian cities is not clean due to the unwholesome residential and industrial environment. Nature has been altered through the devegetation the urban ecology resulting to widespread poverty and disease. This trend is noticeable on the satellite imagery of Ado-Ekiti whereby nearly all elements of greenery have been removed and replaced with buildings and hard surface especially in the old core and new development areas. The city environment appears burdened by the ever-growing spatial demand for residential, commercial, industrial and other uses, and the quest for infrastructural development, which further consume outlying virgin green areas.

Ojo-Fajuru & Adebayo (2016) finds that the loss of a considerably large portion of open spaces and greenery to concrete development and hard surface treatment in Ado-Ekiti results to heat radiation, poor environmental quality, and reduction in urban comfort and liveability. The air quality tends to be polluted by emissions from increasing car ownership and automobile usage (Ojo-Fajuru, 2001), and fumes from alternative power generators that supplement the shortfall in increased energy demand that is not met due to energy crisis, as well as from traditional domestic wood-burning cooking method. The teeming masses of unemployed and unemployable people, including beggars and destitute, engage in informal activities along roadway and available open spaces tend to degrade the environment. According to Uchegbu (2002), the failure of city managers to resolve these human activity-related issues through sensitive planning has led to the pollution of water, land, and air; atmospheric contamination; land degradation; deforestation; desertification; loss of biodiversity; ozone layer depletion; and global warming. This necessitates

need for this study, which advocates the adoption of the tenets of the green agenda to eradicate these carbon footprints towards achieving a green, clean, equitable and liveable city in Ado-Ekiti.

Closely interrelated with global warming, climate change is the current climatic phenomenon ravaging the environment worldwide with debilitating effects on the ecosystem, flora and fauna, and human settlements. Since climate connotes the overall characteristics of the atmosphere at a given place over a given period, it forms an important aspect of man's environment. According to Adebayo (2010), climate contributes to the development of other earth surface phenomena, such as the aquatic, terrestrial and atmospheric attributes, which, in turn, exert considerable influence on the climate. The interrelationship amongst the atmosphere, lithosphere, biosphere and the hydrosphere affect man and his activities on earth. The mutual relationship and actions between man and the environment have brought many environmental challenges, chief among which are global warming and climate change that often result in thermal discomfort, natural risks and disasters.

Climate change refers to a significant, long-term variation between two climatic states or conditions with appreciable impacts on the ecosystem. It is induced by anthropogenic factors such as greenhouse gas emissions, gas flaring, and bush burning, which destroy the ozone layer and result in a rise in the atmospheric temperature, tantamount to global warming. The positive impacts of climate include sunshine, rain and wind in the right proportion of time, place and intensity, while the negative impacts stem from climatic anomalies or climate change such as storms, floods, ocean rise, drought, and heat and cold waves. The undesirable effects of climate are most intense in human settlements, with inhabitants exposed to environmental hazards and disasters. Indeed, climate change is the greatest humanitarian crisis of our time, responsible for conditions that threaten human health, communities, the economy, national and international security (Adebayo, 2010), and major environmental issues exacerbating urban problems. In effect, cities in developing economies now have to grapple with the double-edged challenges of urbanization and climate change (Cities Alliance, 2005), which are currently manifesting in Ado-Ekiti. The reversal of this trend forms a major concern of this research.

Climate change is therefore a complex phenomenon and its full-scale impact is hard to predict (Kiamba, 2012). There can be no doubt, however, that it is having notable effect on the planet. Dire consequences are inevitable if the causes of climate change are not decisively addressed. Illness and death result from extreme heat and transmission of diseases in food and water and by insects; children, the aged and the poor are particularly vulnerable (United States Global Change Research Program, 2001). The Third Report of the Intergovernmental Panel on Climate Change (IPCC 2001) notes that the implications are most severe for cities in coastal, riverside locations and resource-dependent regions; and warns that the impact of climate change will be felt more in the future. It has been proven beyond doubt that global warming is a reality and that, unless there are significant reductions in global greenhouse gas emissions, wide-ranging climate change impacts will follow (IPCC, 2007). Such changes will have significant environmental, social and economic impacts across different sectors and places.

Climate change is altering human communities, the environment, health and the economy in diverse ways, and impact different cities in different dimensions. If not aggressively reduced, it could have a devastating effect on the environment. In the Nigerian situation, there are evidences showing that climate change, mainly induced by anthropogenic factors, is affecting all aspects of human development, rendering settlements vulnerable to environmental disasters. True to the assertion that many urban poor are rendered more vulnerable by flooding, given where they live (Oboe, 2014), a million families were displaced when floods washed away 90,000 hectares of land across 5,000 villages in 11 LGAs in Jigsaw State in September 2010. This has resulted in the loss of farms, homesteads, livestock and agrarian produce estimated at about ₦4.5 billion, Nigerian naira, equivalent to USD30million (Gagah, 2010). In Abia State, the Nlago end of Aba-Ikot Ekpene Road was rendered impassable by flooding and craters, hindering the movement of people, goods and services. In Ibadan, over 100 lives were lost and estimated damage to properties worth over ₦30 billion (Nigerian naira, or USD 192.3 million) were recorded in the flood of August 2011(Agbola et al. 2012). They attributed the flood disasters, which have become a recurring decimal in recent times, mainly to anthropogenic factors. Such include dumping of wastes in drainage channels, physical developments encroaching into setback of rivers/streams, blockage or diversion of river channels, vegetation depletion, and increased impervious surfaces.

In Ado-Ekiti, the capital of Ekiti State, flash floods destroy properties, displace people, disrupt commercial activities and paralyze traffic along the flood plains of the Ajilosun, Ireje and Orojuda Rivers each year. During the dry period, as the temperature rises, the bare city landscape tends to become uncomfortable for human activities, a situation aggravated by the insufficiency of green landscaping elements. It is a truism that the forces driving climate change in the city are linked to ‘underlying poverty-environment traps, increasing land fragmentation in densely populated areas, land degradation and inefficient land use’ (El-Sioufi, 2010). The Cities Alliance (2005) and Kiamba (2012) agree that while climate change is complicating the prevailing socio-economic and environmental crisis, new challenges emerge with concomitant effects on the growth dynamics of the urban environment and the planning and management apparatus. While some schools of thought believe that it will be very costly to address these issues, the fact remains that proactivity is not only cheaper than the dire consequences of inertia, but could also offer economic, environmental and health benefits, while enhancing sustainability.

This research project therefore drew on knowledge of global warming and climate change to align the causes and effects of natural and anthropogenic disasters with the challenges posed by the inadequacy of greenery or excessive hard surfacing in Ado-Ekiti. It posits that effective adoption and rationalization of landscaping concepts, models and techniques is central to mitigating the socio-economic and environmental challenges of global warming and climate change that threaten sustainable environment in the Ekiti State capital as well as overall national development.

### **5.3 Transportation in relation to space, landscape and the city environment**

Transportation has a strong influence on the spatial structure at the local, regional, national and international levels. Following the industrial revolution in the 19<sup>th</sup> century, transportation systems arising from the invention of the steam engine not only facilitated the exchange of goods but mass movement from the rural hinterland to urban areas. Innovative technological developments have enabled transportation to overcome physical barriers. The emergence of expressways, high-speed systems, global air transport, container shipping, and telecommunication networks in the 20<sup>th</sup> century speeded up this process. Current transport systems are therefore the outcome of a long evolution marked by periods of rapid change where

new transport technologies were adopted and developed in response to the complex relationships between demand, location and the networks that support movement in terms of both capacity and spatial extent. Mandri-Perrott and Menzies (2010) observe that cities all over the world continue to seek ways to improve transportation to meet the needs of their ever-expanding populations, thereby making it the responsibility of planners to identify affordable, environmentally friendly, and socially responsible transportation options to sustain development in urban areas. Transportation is thus the engine of development that is important for the survival of modern society as it supports life, be it in the countryside or in the city such as Ado-Ekiti.

According to Goodman and Freund (1965), the urban transportation system is the circulatory system of a city. It brings people and goods into the community and provides the means by which they can move freely from one activity area to another. Since circulation mainly involves the vehicular movement of people and goods throughout the city, he categorized the transportation system into three basic inter-related subsystems: the travel way; the vehicle of transport; and the terminal facilities. In terms of travel way, circulation takes place by means of permanent pathways, namely streets of all types, expressways and freeways, railroads, waterways and other types of mass transportation facilities. The travel way is the major structural element of the urban community since these facilities ideally occupy up to 30% of the total land area. It influences the shape of blocks and the buildings within them, and helps to fix the boundaries of residential communities and major land uses. The quality of the circulation system directly influences the volume and orientation of travel within the city, and therefore indirectly influences its economic well-being. Inadequate road space, which constitutes less than 10% of total land space, far below the recommendation of 25-30% (UN-Habitat, 2013), causes traffic congestion, conflict and air pollution in major cities in Nigeria, including Ado-Ekiti.

Ojo-Fajuru (2001) found that Federal Government roads accounting for the greatest percentage of inter and intra-regional movement are mostly tarred and well maintained in Ado-Ekiti. State Government and Local Government roads that serve the city are generally not tarred and dusty in the dry season. The numerous large potholes which dot their surfaces at close intervals become flood pools in the rainy season as they lack drainage channels, and the culverts (where available) are poorly constructed. The roads are poorly aligned; hence numerous sharp bends render them

dangerous. The need for a good road network in Ekiti State capital was initially documented in the Structural Plan for Ado-Ekiti prepared by an Ad-hoc Committee set up by the maiden Inua Bawa Administration shortly after the creation of the new state in October, 1996. The plan's recommendations included the dualisation of some major roads in the new state capital and the construction of two new ring roads as eastern and western by-passes (Ojo-Fajuru 2010). While most of the major roads in the city are now dual carriageways, the two ring roads have not come to fruition and traffic congestion is increasing. It is pertinent that, apart from the major arterial roads, well-surfaced road network that reduces dust and other particulate matters affecting air purity and environmental cleanliness seems to be in acute shortage in Ado-Ekiti.

The second subsystem, which is vehicular, comprises the motor cars, trucks, speedboats and rapid transit cars. Each has its functions and efficiency in the transportation of persons and cargo. In terms of use, cars accounts for about 85-90% of total travel on expressways, highways, arterial and local streets, while trucks form most of the remaining travel. The number or percentage of trips made by bus or rapid transit varies widely, depending upon the density, physical and economic characteristics of the city, and the type, extent and service offered by mass transportation system. Terminal facilities, grouped as the third subsystem, are facilities providing for the delivery, receipt and temporary storage of freight or the embarkation of passengers and providing for the temporary storage of the vehicle itself. Off street automobile parking garages and lots, rail road terminals, airports, truck terminals and docks are forms of terminal facilities (Goodman and Freund, 1965). Others are bus terminals, taxi ranks and motor parks.

Fadare and Morenikeji (2001) describe mobility as the interface between land use and productive activities, which facilitates households and individual's activity systems and subsystem. According to Fried (1977) cited in Fadare and Morenikeji (2001), individuals and groups of people participate in four major role complexes viz: facility roles, the worker/earner role, interpersonal or social role and leisure or recreational role. Based on the identified roles, people's activity systems are determined by the type of work, business, personal, shopping, social, recreational and other activities the people engage in. It is therefore an established fact that travel pattern for all trip types vary among individuals and their socio-economic attributes due to the priority weighting the individuals accord to their activity roles.

Matalon (1982) explains that human behavior and mobility vary to a significant extent within social groups (in term of age, sex, occupation, income, etc.) that were previously considered to have uniform characteristics. In other words, priorities accorded to each role complex could be explained in terms of people's activity participation as guided by their socio-cultural attributes such as level of income, family structure, sex difference, nature of occupation, etc. For effective human interaction to take place, people, goods and services have to be transported from one place to the other. In essence, transportation is the essential glue that bounds people to other social, political and economic activities. In other words, transportation is an integral part of the urban economy, and its adequacy, efficiency and availability goes a long way in determining the successful and continued existence of any human society. Transportation also influences the size and distribution of human concentrations and patterns of land use within and between urban boundaries (Fadare and Morenikeji, 2001).

Given the fact that 93% urban growth will be occurring in developing economies in the future (United Nations, 2007), and the rapidly increasing motorization creating serious challenges (Ojo-Fajuru, 2001; UN-Habitat, 2010), Ipingbemi (2014) points out that the steadily increasing urban population portends a commensurate increase in the need for mobility, the number and duration of trips generated, and the volume of traffic generated in cities. Buchanan (1964) stresses the subject of traffic as a function of land use activity whereby vehicles do not move about on the road for mysterious reasons of their own; rather people want or cause them to move in connection with activities in which they are engaged, hence traffic is a function of activities. The rising popularity of motorized transport and the increasing use of automobiles generating high volume traffic, emissions and other associated problems are trending in major cities of the world such as Ado-Ekiti.

The results of the significant increase in vehicle usage, especially motor cars and motorcycles (particularly commercial riders popularly known as '*Okada*') are acute traffic congestion, noise and deteriorating air quality (Ojo-Fajuru, 2001; Ipingbemi, 2014). A typical example is Lagos where 43% of air pollution emanates from vehicles (Mobereola, 2013). Stern (2006) and Yan and Crookes (2009) note, that, the transport sector emits carbon dioxide (CO<sub>2</sub>) and makes a substantial contribution to greenhouse gas discharge, which is the main cause of climate change.

The IPCC (2007) stated that the transport sector was responsible for the largest contribution to global CO<sub>2</sub> emissions between 1970 and 2004, corresponding to 23% of all energy related CO<sub>2</sub> emissions in 2005. Given ever-increasing travel and automobile usage, the International Energy Agency (IEA, 2009) projects that globally, transport related CO<sub>2</sub> emissions will increase by 50% to reach more than 80% by 2050. In addition to the direct impact on the global physical environment, the latent implications of vehicular emissions at local level are alarming. Gwilliam et al. (2004) note that air pollutants like lead, dust, other suspended particulate matters, and in some cases, ozone damage human health. In developing countries, more than 500,000 casualties are recorded each year due to respiratory and other diseases, with an economic cost equivalent to about 2% of their GDP.

These phenomena are observable in Ado-Ekiti, the administrative, political, educational and commercial headquarters of Ekiti State, where traffic and transportation problems had adverse effects on residents and the environment. Ojo-Fajuru's (2001) study on the environmental impacts of the influx of motorized vehicles in the Ado-Ekiti region found that the city confronts serious environmental problems ranging from traffic congestion, to noise, accidents and conflict, environmental pollution and degradation of various forms, urban sprawl, the isolation and inconvenience resulting from an immobile regional populace, insecure lives and property, increased demand for transportation routes and related services, and violent protests by unionized transport workers, all of which seem to be on-going. Apart from the sidewalks provided along the new dual roads, there are no dedicated pedestrian ways in Ado-Ekiti. Available sidewalks appear to have been encroached upon by commercial and other activities, forcing people to walk on the roadways. This exposes them to danger and makes the city unliveable. The majority of those living in Ado-Ekiti survives in an environment devoid of greenery serviced by dusty roads, and are exposed on a daily basis to traffic noise and fumes. This study intends to address this situation by reclaiming lost spaces and establishing green spaces, and infrastructure, green urbanism and green transport.

#### **5.4 Waste management and the city environment**

Waste management should be a conscious and deliberate activity in any city in order to mitigate and eradicate hazards caused by its indiscriminate disposal. It involves the collection,

transportation, treatment and disposal of waste (Glossary of Environmental Statistics, 1997). The basic components of waste management include waste generation, storage, collection, transport, recovery and/or final disposal. With a steadily growing population, Nigeria confronts solid waste management challenges that derive from:

[a]n inadequate regulatory framework that has manifested in lack of interest of private sector investment in service delivery (infrastructure), uncoordinated institutional functions, low capacity to discharge duties, poor data information for planning, and wrong attitude of waste generator amongst others. (Oresanya, 2014, p. 256)

Waste management should be taken seriously to ensure a clean and healthy environment in Nigerian cities, particularly in Ado-Ekiti, if the goal of transforming the state capital to the status of a liveable and sustainable green city is to be holistically achieved.

Litter is the component of waste that is indiscriminately disposed of, especially in an inappropriate location. It refers to objects that are left for others to dispose of, such as tires, appliances, electronic goods and large industrial containers which are hazardous and often dumped in isolated locations. Litter can be visible for a very long period of time before it eventually decomposes, with glass, Styrofoam and plastic remaining in the environment for over a million years (Brody, 2009). Novotny and Zhao (1999) note that cigarette butts are the most littered item in the world with 4.5 trillion discarded annually, while it takes anything between five and 400 years for one to completely degrade. Population levels, traffic density and proximity to waste disposal sites are correlated with higher levels of litter (Northeast, 2010). Eighty per cent of the respondents that participated in a Dutch survey agreed that “everybody leaves behind a piece of paper, tin or something on the street”. Young people between the ages of 12 and 24 are responsible for more litter than any other age group (Dur, 2012). Indiscriminate littering poses a serious threat to cleanliness. This study seeks to address this issue in order to establish Ado-Ekiti as a litter-free, clean and green city.

Trash is another component of waste, consisting of things that are no longer useful or wanted. Fallen leaves and twigs or chaff are also regarded as trash. It is made up of commercial, industrial and household waste and waste from open places. However, household waste is mainly regarded as garbage, which is solid particles of waste consisting of discarded animal and

vegetable matter from the home, mainly the kitchen. This could constitute litters when poorly handled. Dur (2012) highlights the causes of litter that include indiscriminate littering, lenient law enforcement, inconvenience, entitlement, economic conditions and illiteracy as well as the unavailability of kerbside trash cans and recycling services. A little litter in a place results in more widespread littering. Litter, trash and garbage pose serious environmental challenges to a clean city environment in Nigerian urban centers, typified by Ado-Ekiti, where waste is indiscriminately dumped in open spaces, incomplete buildings, vacant lots, rivers, streams and drainage channels, or burnt in the open. Oresanya (2014) notes, that, sound waste management is essential for public health and environmental protection. This study thus seeks to identify best practices in solid waste management to achieve sustainable greening in the capital city.

Sewage is a water-carried waste in solution or suspension. It is the liquid component of waste which is usually removed through pipes to sewage lines and holes and finally to treatment plants. It is also known as municipal or domestic wastewater. Made up of chemical and toxic constituents, and micro-organisms with bacteria, it includes grey water from sinks, bathtubs, showers, dishwashers and washing machines, black water from toilets, soaps, detergents, and toilet paper and surface runoff. Sewage passes through a channel from a building's plumbing into a sewer and then to a sewage facility or treatment plant. Accordingly, the sewage system and drainage should remain a public responsibility, just like other public services (Eisner, Gallion & Eisner, 1993). Liquid waste needs to be properly collected and safely disposed of, especially in an industrialized, urban society. Contrariwise, most sewers in developing countries are discharged into a water body such as an ocean, bay, lake, river, stream, drainage channel or directly on open land. Untreated wastewater causes widespread water pollution in developing countries, especially low-income or underdeveloped countries as it is released into the environment (Corcoran et al, 2010). Wastewater is a complex combination of distinctive chemicals and characteristics, including pathogens and micro-pollutants which cause diseases and environmental pollution. In Ado-Ekiti, the excessive usage of septic tanks and soak-away pits is capable of contaminating ground water sources, while the discharge of untreated wastewater and sludge into fluvial channels and open land pollutes surface water, breeds disease vectors, affects air quality and reduces living standards. This constitutes a major issue to be

resolved in order to have a workable green city plan for a liveable environment befitting of the state capital.

Smoke is another gaseous waste which is a collection of airborne solid and liquid particulates and gases emitted to the atmosphere when a material undergoes combustion or pyrolysis, together with the quantity of air that is mixed into the mass. It is generally an unwanted by-product of fire that emanates from stoves, candles, oil lamps, fireplaces and domestic cooking. Smoke is also a component of internal combustion engine exhaust gas, particularly diesel or worn-out petrol engine. Unlike emissions and fumes, it could be mildly dangerous to the environment. However, it is also the result of smoking (tobacco, cannabis, etc.) which is harmful to human health. Fumes consist of gas or vapour which is irritating and harmful and has a strong smell. It also refers to gas ejected from an exhaust as a waste product.

Increased vehicle usage, especially older models and used motorcycles, cars, buses, trucks and trailers known as *'tokunbo'* that have old engines release a substantial amount of smoke into the atmosphere in Ado-Ekiti (Ojo-Fajuru, 2001). The unreliable power supply has led to the use of power generators, which increase noise levels and release harmful effluents. Domestic activities like cooking with wood and kerosene stoves; informal commercial ventures such as roasting corn, yams, plantains and barbecue called *'suya'* with charcoal fires, and the use of unshaded kerosene lamps locally known as *'atangunle'* or *'sakabula'*; as well as burning of refuse and smoking habits are the sources of the smoke and fumes that pollute the air in Ado-Ekiti.

The generation, poor handling and indiscriminate disposal of solid, liquid and gaseous wastes debilitate the environment and threaten the cleanliness of the Ekiti State capital city. A major environmental challenge in keeping any city clean is improper handling of all categories of wastes which undermines the quality of the environment and threatens lives and livelihoods (Agbanusi, 2014). The enactment and effective implementation of laws that promote effective waste management in terms of storage, collection and disposal are very important in curbing improper waste disposal. The best practice of the 3Rs of waste management, that is: reduce, reuse, and recycle need be inculcated. In order to keep Ado-Ekiti clean, green, liveable and sustainable, programs and incentives that support salvaging, decreasing and reprocessing waste

need to be put in place. Awareness campaigns are also necessary to educate the public on how to discard or recycle waste.

### **5.5 Public participation in environmental policies of the green city**

Since time immemorial, planning has centered on people's needs and how to improve their lives and promote a healthy living and working environment. Several frameworks have been proposed over the years to address environmental issues. Significantly, the accomplishment of these policy directives rests on the level of involvement of those that will be most affected by planning activities, that is, the people. It is perceived a civic and social responsibility for the individuals and corporate bodies to be involved in the planning and upkeep of their places of abode or operation. However, the lack of people's involvement contributes largely to the failure of conventional land use planning process (Falade, 2003). Oduwaye (2006) agrees that many planning frameworks do not involve citizens in planning, which contributes to deficient plans (Kingsley et al., 2013 cited in Alonge & Aribigbola, 2014). The fact remains that the professional town planner and the political class cannot do it all alone, as the complexities and ambiguities surrounding the mechanisms sustaining cities have become more difficult to understand, fund and implement (Oduwaye, 2006). Mabogunje (2011) argues that a definable settlement, be it a village, town or city, is where residents are opportune to participate in making decisions on issues that have direct impacts on their lives.

An approach is thus required that involves all interest groups in the planning process, including government agencies, political leaders, professionals, the business sector, community groups and individual. This calls for public education campaigns that raise awareness of the impact on the environment; their expected role and what the plan aims to achieve. Every planning action begins with information gathering. Identifying a planning problem and being able to solve it greatly depends on the amount of information available. Muhammed (1994) asserts that information is a vital resource, which promotes a nation's social, cultural, spiritual, political, economic, scientific and technological advancement; greater socio-political equity; efficient governance, power and followership. Since information is vital to the process of goals attainment in this study, there is the need to establish how best to communicate with various stakeholders and how to manage the information. However, it is one thing to gather information

and another to effectively disseminate it through the right channels to ensure proper feedback. Reliable feedback depends on how well information is managed and the techniques employed. Being able to channel information through the proper media, is one way of ensuring public participation, education and enlightenment, as identifying citizens' needs and enabling them to understand the current situation assists in securing their co-operation. This research study thus recognizes the relevance of public participation, education and enlightenment in providing, reclaiming and as well protecting setbacks and open spaces through greening, sustainable usage and conservation to attain the goal of making a clean and green city out of Ado-Ekiti, the Ekiti State capital.

The concept of participation is defined in different ways depending on the perspective from which it is viewed. It refers to the participation of an individual as a citizen or as part of a group in the planning process. Participation democratizes the planning process, enabling beneficiaries to have a greater say. The community should be involved in the formulation and implementation of proposals and policies on the physical development of their areas. People and material resources need be mobilized to improve the quality of the environment. Oyesiku (1998) describes this as an active process in which people participate in making and implementing decisions. Government alone cannot provide for citizens' needs, hence the community concerned should initiate plans and execute projects that benefit local citizens. This ensures that their needs are taken into account (Akinmoladun and Oduwaye, 2000). The concept of placemaking, which is central to this study, requires the active participation of the citizens and corporate bodies, operating within the ambit of the green landscaping plan, in turning incidental and reclaimed public spaces into inclusive green areas that are guaranteed to promote green urbanism, green infrastructure and green economy in the sustainable landscape and environment of Ado-Ekiti.

Education is a dynamic instrument of change. Non-formal education promotes mass public awareness and is capable of changing and strengthening attitudes, values and actions that are congruous with sustainable development. It is also an effective means of encouraging popular participation in decision-making (National Policy on the Environment, 1998). On the other hand, enlightenment means to make aware, to shed more light or make something clearer. Public education and enlightenment therefore entail creating programmes or media to make the public

aware of the necessary actions and steps to be undertaken by the planning authority. Enlightenment promotes an understanding of the positive or negative effects of the action, its costs and benefits and the various roles expected of stakeholders. For instance, in considering building controls and regulations, the planning authorities are expected to disseminate information about setbacks.

The public should be educated on the importance of complying with building standards, what they stand to lose when they default on regulations, and how they can go about maintaining the rule of law and due process. Therefore, Agbanusi (2014) justifies that education and public enlightenment programmes are germane to keeping the city environment clean and healthy, since it is only an educationally empowered and well informed citizen that can build an economically strong and environmentally stable community. This is akin to the intention of this study, which places premium priority on the need to educate and inform the populace on the aims, objectives and benefits of the green city plan and their roles in making it work to attain equitable and sustainable landscape in Ado-Ekiti.

## CHAPTER SIX

### SETBACKS AND OPEN SPACES: ATTRIBUTES AND LEGAL FRAMEWORK

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#### 6.0 Introduction

This chapter discusses setbacks and open spaces in detail, including their attributes, legal framework and sustainability. It also examines definitional, socio-economic, constructional (in the case of open spaces), functional, management and educational or perceptual issues relating to setbacks and open spaces, especially in the city setting. The legal frameworks that guide the establishment and maintenance of setbacks and open spaces in urban areas are analyzed, including the spatial development framework, master planning policies and implementation strategies.

Moreover, the provisions of national, state and local government enactments on development control such as planning laws, regulations, by-laws, public health acts, decrees, codes and edicts as they relate to setbacks and open spaces are studied as a yardstick to establish contraventions and encroachment, and at the same time justify the reclamation of illegally developed setbacks and open spaces in the city. Emphasis is also placed on public awareness, priorities versus greening, functional usage, and the economic potential, socio-cultural integration and environmental sustainability of setbacks and open spaces and the overall landscape of the city.

#### 6.1 Setbacks and Open Spaces

Setbacks are distances from roadways, streets, kerbs, property lines, adjoining buildings or structures, public utilities, streams, rivers, flood plains, and shores within which building is prohibited. Setback as a form of land-use control originated as far back as 450 B.C. when the Roman Empire promulgated regulations to control building setbacks and distances between trees from their boundaries; these were eventually integrated into Western civilization (Legal Dictionary n.d. a; Iftikhar, 2017). In legal terms, setbacks are stipulated by zoning statutes or restrictions to regulate the minimum distance from the property line where a structure may be built, and to stop houses from being built too close to each other to allow for light and ventilation. They are also used to control how close a structure may be built to a road (Webster's New World Law Dictionary, 2010), thereby providing ample spaces for landscaping and

beautification of the environment. Hence, setbacks are building limitations that are enforced by planning authorities on property owners and developers through laws, regulations and codes to ensure and promote safety, privacy, convenience, aesthetics and environmental quality. The McGraw-Hill Dictionary of Scientific and Technical Terms (2003) regards a setback as the minimum distance between a reference line (usually a property line) and a building, or portion thereof, as required by ordinance or code. Similarly, the Webster's New World Law Dictionary (2010) states that a setback is the minimum distance from the property line to where a structure may be built, as regulated by zoning statutes or restrictions in the deeds in various locales.

Hence, setback regulations form important part of building laws that provide that a building be recessed by a certain distance from the street or plot line, be it at street level or at a particular height, with the aim of providing ample space for pedestrians or to reduce obstruction to sunlight reaching the street and the lower stories of adjoining buildings (Akinmoladun, 1999). In spatial planning, setback is the minimum distance reserved from any development between a building or structure and another feature, such as roads, streams or rivers, coastlines, power lines and property lines. Setbacks are provided as space for safety promotion, space provision for infrastructure and utilities, abatement for noise, hazard or nuisance, preserve/improve aesthetics, and provide space for screening and landscaping from adjacent lots.

The setback line has been likened to the building line and described as the distance between the building and the centre of the road, which is essential to ensure adequate spacing between adjoining buildings and roadways, ventilation, natural lighting, safety and urban aesthetics (Fagbohun & Oke 2011). Adedeji and Fadamiro (2011) posit that within the urban residential neighbourhood, building setbacks, when properly provided, impact directly on the quality of the resultant open space around individual buildings and the landscape quality of the entire neighborhood. To promote healthy living within the Nigerian environment, various building regulations and planning standards stipulate minimum setbacks for residential and other land uses. Oderinde (1998) observes that, if private and public buildings and industrial, commercial, administrative and even recreational uses are to have sufficient light, ventilation and easy access, and be safe and convenient, they must be sufficiently set-back from the centre line of roads and adjoining buildings and structures.

Obateru (2005) aligns with the interpretation contained in Section 177 of the Building and Sub-division Regulations, 1984, currently operative in Ondo and Ekiti States, which argues that setback is the required minimum distance between the edge of a plot or parcel of land and any building or structure on that plot (ODSG, 1984), while air space denotes the space between two adjoining plots, buildings or structures. It is generally agreed that the purpose of a setback is to prevent houses or buildings and allied structures from being built so close to each other that they cut off the lighting source to, or block ventilation from a neighbour's home. It also applies to how close a structure may be built to a road. Ideally, setback provision is an essential aspect of development control, a regulatory and quality control process of implementing approved standards and regulations with the objective of creating a functionally efficient and aesthetically appealing environment in human settlements, the efficacy of which this study is set to ascertain.

Open space literally means an area devoid of any form of physical development or concrete construction. Eliot (1902) argues that open space in its elementary form is the sidewalk of a city and land use, and ranks open spaces from totally passive, almost unused space to outdoor salons and playrooms as active spaces. Open space has been described as:

land or water that is not predominantly occupied by buildings or structures. Open spaces include natural, heavily vegetated areas, as well as formally landscaped and predominantly or totally paved areas. They may be available for recreation (which itself may be active or passive) or may serve basically private purposes such as agriculture or forestry uses, which have only incidental or indirect public benefits. Open space may be either publicly or privately owned, or ownership may be shared between the public or private sectors, such as when a public agency acquires a scenic easement on a privately owned property. (U.S. Department of Transport 1975, p. 74)

Gold (1980) defines open space in general terms as land and water in urban areas which is not occupied by buildings or automobiles, or any undeveloped land in an area which has value for park and recreational purposes, conservation of natural resources, or historic, or scenic purposes. In relation to urban form, open space constitutes “the structural framework of a city to produce edges, focuses, nodes, districts, and regions of different size, scale, and character”. Section 177 of the Building and Sub-division Regulations, 1984, which is used in Ondo and Ekiti States, simply describes open space as an area not covered by a building or structure and open to the sky (ODSG, 1984). In the view of Falade (1985), an open space is any large or small area of land or water in or near urban or village areas that is used for recreational, aesthetic, or ecological functions; the author stressed that it is also conceived as “land not built upon”.

The Cape Metropolitan Council (1996) philosophically describes planned open spaces as “outdoor libraries to read the people, feel the community and identify the socio cultural values of city people”, such as private front, back, and side enclosures, plazas, outdoor recreational centers, parks, parklets, right-of-ways, parkways, and urban wilds, which evolve into a ring of city open space. Such planned spaces are “physically or visually connected”. Akinmoladun (1999) notes that the term is often loosely used to describe all land which is used for purposes which do not involve a portion being covered with buildings or substantial development, which enables it to be left almost in its natural state or be treated so that it is visually attractive.

Fadamiro (2002) states that open space in its ‘broadest’ terms is not used for buildings or structures, and could be air, land, or water that may have value as an active recreation area in large urban centers, a boulevard in a suburb, or an open rural hinterland such as a vast national forest reserve. It may be fully or partially owned by the public, or private concerns, or be an easement, and may serve the purpose of recreation, tourism, economic or resource development, utility or amenity. Having grouped them together with other collectively shared spaces in the public domain, Fadamiro and Atolagbe (2005) argues that urban open spaces are portions of land in the built environment such as natural landscapes, artificially designed cultural areas, and partially enclosed outdoor spaces, which offer relief from a mass of solid forms.

In the Orient, the concept of open space is pre-eminent in urban planning policies. In China, the Planning Department of the Hong Kong Special Administration Region broadly defines open space as a term used interchangeably with recreational open space to describe “a statutory land use zone for the provision of open space and recreation [sic] facilities for the enjoyment of the general public”. Recreational open space is regarded as outdoor open air space used primarily for active and/or passive recreation, be it developed by the public or private sector (Government of Hong Kong Special Administration Region, 2007), thereby reflecting the cultural setting in the Far East.

In the Occident, the open space assumes different meanings from country to country and from place to place within each country. While the American *Planning and Urban Design Standards* indicates that open space may include specific resources like plazas, greenways, and cemeteries,

varies in definition from one community to another, some states may view it broadly as “any land that is free of residential, institutional, commercial, or industrial use”, even as others may limit it to legally protected conservation areas. In general site planning considerations, open space includes parks, plazas, greenways, storm water management areas, and any other unpaved or undeveloped areas, to the extent that open spaces may constitute 10% to 30% of the total area of the layout plan. The percentage devoted to open spaces may be higher in a situation where conservation takes priority (American Planning Association, 2006). In the Scottish Government Planning Advice Note, PAN 65 Planning and Open Space (2008), which focuses on green space and touches on civic space, open space includes:

green space consisting of any vegetated land or structure, water, path or geological feature within and on the edges of settlements, and civic space consisting of squares, market places and other paved or hard landscaped areas with a civic function...[s]ome spaces may combine green and civic space elements, but one type or other will usually predominate.

Open spaces, therefore, imply areas that are open for public access, public recreation, the outdoors, spaces outside and around buildings, or covered with vegetation. In urban landscape planning and landscape architecture, an open space is usually referred to as public open space, semi-public open space, or private open space. This indicates that open space may be owned by a national, state or local government, non-governmental and not-for-profit organizations, or by a private individual or organization, but made available for public use. Open spaces could be squares such as village, town or city squares, private or public parks, green spaces, greenways, highways, right-of-ways, private roads, incidental open space, setbacks and easements. They structure cities for common activities. In general, terms, Ojo-Fajuru & Adebayo (2016) see open space or public space as a social space that is available and accessible to all members of the society, no matter the age, race, gender, class or creed.

A town square is a public open space commonly found in the center of a traditional town and usually used for community gatherings. The town square is synonymous with a civic centre, public, urban, city, market, or church square, or town green, plaza, piazza and plateia or platia. In most cases, town squares are hard surfaced and suitable for meetings, ceremonies, concerts, open markets, political rallies, and other events that involve a large gathering of people. The center of

town squares is often adorned with a monument, statue, well, or fountain. The majority of those with fountains are known as fountain squares. The centrality of town squares make them attractive for retail shops for foodstuff, confectionary, clothing and apparel. Similarly, a city or urban square is a planned open area in a city, usually or originally rectangular in shape. Some city squares are large enough to be regarded as national squares. Examples are Tafawa Balewa Square in Lagos, Eagle Square in Abuja, Independence Square in Accra, Church Square in Pretoria, Grand Parade in Cape Town, Alexanderplatz in Berlin, Piazza della Signoria in Florence, Trafalgar Square in London, Yonge-Dundas Square in Toronto, and the Tiananmen Square in Beijing.

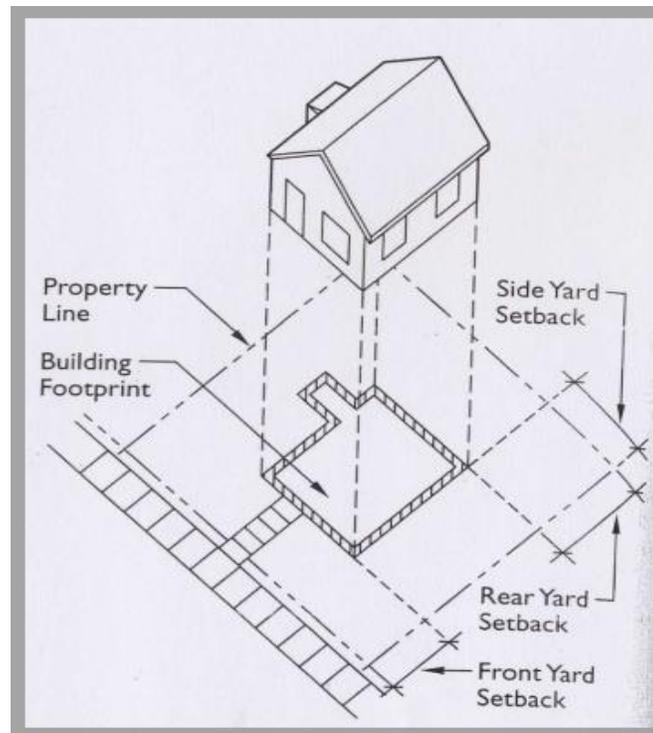
Dense forests and city walls are unique entities in central areas in the city structure, especially in the southwestern zone of Nigeria. Usually associated with the Oba's palace in the town center is a dense forest replica of the Osun Sacred Grove, which is one of the last remnants of primary high forest in Southern Nigeria. Ojo (1964a, 1964b) depicted the layout and morphology of Yoruba town and identified the palaces of *Ooni* of Ife, *Alaafin* of Oyo, *Olowo* of Owo, and *Ewi* of Ado-Ekiti enclosed within its walls. Situated roughly in the center of the towns and surrounded with imposing walls, the palaces included a considerable forest area (see Figures 4.1 & 4.2 in Chapter Four).

It was also customary for Yoruba cities to have a sacred forest just outside their limits. About a century ago, there were many sacred groves in Yorubaland as every town had one. The sacred grove, seen by Yoruba people as their symbol of cultural identity, varies in hierarchy from the king's palace to district head territories. It is an active religious site where daily, weekly and monthly worship takes place, including rites and annual festivals. The grove is also a natural herbal repository containing hundreds of species of plants with various endemic and medicinal values.

From the foregoing, it is clear that open spaces are meant to be left open as air spaces and lungs in the intricate urban web, without any concrete development except for landscaping, civic usage, recreation and urban agriculture.

## 6.2 Typologies of setbacks and open spaces

Setbacks and open spaces vary in type and dimensions according to their location and functionality. The American Planning Association's *Planning and Urban Design Standards* defines four major types of setbacks to a building or structure: front setback, rear setback, left side and right side setbacks (see Figure 6.1 below).



(Source: American Planning Association (2006): *Planning and Urban Design Standards*, Hoboken, NJ, John Wiley & Sons, Inc., p.186.)

Figure 6. 1: Yards and setbacks.

However, setbacks can be smaller when density is higher or virtually excluded in extreme urban situations (American Planning Association, 2006). Fagbohun and Oke (2011) also identified the standard minimum setbacks required for residential areas as including front, side, rear and back-to-back setbacks. Larimer County, Colorado, US recognizes several types of setbacks such as those required by the zoning district; setbacks from state and federal highways; setbacks from streams, creeks, rivers, and water bodies; and those emanating from restrictions to development such as easements and building envelopes (Larimer County, 2014), including flood plains in the case of water bodies.

In the Third Schedule of the Building and Sub-division Regulations, 1984, the minimum setbacks for residential, industrial, and commercial building presented in Table C (Regulation 28), Table D (Regulation 30), and Table E (Regulation 32) respectively, are categorized into front, rear, left, and right-side setbacks to provide ample spaces around each building and between adjoining buildings. Section 30 subsections (2), (3), and (4), and Section 39 subsections (1) and (2) stipulate setbacks for fences targeted at space creation for safety and landscaping and Section 145 subsection (n) provides for setbacks to highways for wellbeing and greenspace propagation along transportation corridors (ODSG, 1984).

In terms of planning permits, Section 34, subsection (a) of the Ekiti State Urban and Regional Planning and Development Law No.3 of 2011 requires that the use and development of land conform with stipulated minimum setbacks to hydrological features such as streams, rivers, dams and large water bodies to protect the banks from any form of development, as well provide sufficient room to accommodate flooding and avert danger to lives and loss of property in the event of overflow of water along the channels. Applicable minimum setbacks must also be provided to local, state, and federal roads to maintain standard safety regulations, and provide ample space for sufficient lighting, sight distance, pedestrian movement, and greenspace to sustain environmental quality. The minimum setbacks to electricity power lines range from low tension (domestic), to medium and high tension power lines to exclude development from their immediate vicinity and ensure adequate spacing to prevent risks to lives and property and conserve greenspace. Minimum setbacks are specified to telecommunications facilities such as GSM cell radio masts, antennas, and optical fibre lines to keep a safe distance from ultraviolet radiation, and prevent risk to life and probable damage to underlying cables. In similar vein, minimum setbacks to utility lines including main water pipelines and underground cables provide easy access to subsurface networks of sewers, cables and other facilities, and protect them from damage while making space for easy routine maintenance or possible additions or expansion. Although not yet available in the state, adequate provision for appropriate setbacks is envisaged for other transportation routes like railways and gas pipelines in accordance with acceptable safety standards and uninhibited operation. The minimum setbacks to quarries aim to minimize the effects of noise, vibration, dust and other particulate matters on adjoining land uses (EKSG, 2011).

In coastal regions, there is coastal setback to regulate development along coastlines, shorelines, and foreshores to forestall the eroding and other dangerous effects of ocean surge. The University of Wisconsin Sea Grant Institute (2014) describes a setback distance as the space from the edge of a coastal bluff or bank or similar landmark to a building or structure. Apart from making provision for setbacks from roads, Section 26, subsections (b) and (c) of the Town and Country Planning (Building Plan) Regulations, L.S.L.N. No. 15 of 1986 also gives legal recognition to setbacks to waterfronts, oil pipelines, railways, and low or high tension power lines to protect lives and property, while creating green spaces for aesthetic and recreational purposes in the urban environment (LASG, 1986).

The typology of open spaces in terms of locality, ownership structure and functional classification vary in time and space. Obateru (2005) subdivides open space into private open space, and public open space, the former being an underdeveloped portion of a plot kept open for outdoor use, while the latter is an open space owned, leased to or placed in the trust of the community and used by the public for outdoor activities. In his study on open spaces in Akure, Fadamiro (2002) identified natural and unused open spaces as most common, followed by recreational and commercial space, while there are few religious, cultural and historical spaces.

In the American context, parks and open spaces planning and provision are structurally hierarchical, ranging from national, to state, and local levels, while the existing environmental, recreational, scenic, cultural, historical, and urban design elements of whatever jurisdiction within a community constitute its parks and open space resources. Deriving from consolidated and nationally accepted professional practice, parks and open spaces are further classified in the order of neighbourhood park, community park, large urban park, youth athletic complex/facility, greenway, parkway, special use (single-purpose), park-school, private park/recreation facility, and regional parks and park reserves (American Planning Association, 2006).

<b>Type</b>	<b>Description</b>
Public parks and gardens	Areas of land normally enclosed, designed, constructed, managed and maintained as a public park or garden. These may be owned or managed by community groups.
Private gardens or grounds	Areas of land normally enclosed and associated with a house or institution and reserved for private use.
Amenity greenspace	Landscaped areas providing visual amenity or separating different buildings or land uses for environmental, visual or safety reasons and used for a variety of informal or social activities such as sunbathing, picnics or kick bouts.
Play space for children and teenagers	Areas providing safe and accessible opportunities for children's play, usually linked to housing areas.
Sports areas	Large and generally flat areas of grassland or specially designed surfaces, used primarily for designated sports (including playing fields, golf courses, tennis courts and bowling greens) and which are generally bookable.
Green corridors	Routes including canals, river corridors and old railway lines, linking different areas within a town or city as part of a designated and managed network and used for walking, cycling or horse riding, or linking towns and cities to their surrounding countryside or country parks. These may link green spaces together.
Natural/semi-natural greenspaces	Areas of undeveloped or previously developed land with residual natural habitats or which have been planted or colonised by vegetation and wildlife, including woodland and wetland areas.
Allotments and community growing spaces	Areas of land for growing fruit, vegetables and other plants, either in individual allotments or as a community activity.
Civic space	Squares, streets and waterfront promenades, predominantly of hard landscaping that provide a focus for pedestrian activity and can make connections for people and for wildlife.
Burial grounds	Includes churchyards and cemeteries.
Other functional greenspace	May be one or more types as required by local circumstances or priorities.

Source: Scottish Government: Planning Advice Note, PAN 65 Planning and Open Space (2008) [Online]. Available: [www.scotland.gov.uk/Publications/2008/05/30100623/5](http://www.scotland.gov.uk/Publications/2008/05/30100623/5) [Accessed 06July 2014].

Table 6. 1: Types of Open Space.

Closely related to this is the classification by the National Recreation and Park Association (NRPA) which suggests guidelines for a hierarchical system of recreation facilities such as mini-park, neighbourhood park/playground, and community park as local or close to home space; regional/metropolitan park, and regional park reserve as regional space; and linear park, special

use, and conservancy as space that may be local or regional but unique to each community (Berke et al, 2006). However, these are guidelines rather than rigid standards, to enable communities to develop their own desirable standards.

In the United Kingdom, the environmental records center for the British capital, the Greenspace Information for Greater London (GiGL, 2014) puts forward categories defined in the London Plan as a yardstick for the provision of publicly accessible open space across the metropolis. Open spaces are classified according to their size, facilities and local importance into regional parks, district parks, local parks and open spaces, small open spaces, pocket parks, and linear open spaces. The Scottish Government Planning Advice Note, PAN 65 Planning and Open Space (2008) offers a more comprehensive classification of open spaces ranging from parks and gardens (either public or private), to lush green areas for social interaction, adolescent and children playgrounds, sports arenas, greenways, urban farmlands, public spaces, cemeteries, and other well-designed greenspace as detailed in Table 6.1 above.

It is obvious that setbacks and open spaces vary in type and size from one country to the other, and even within different localities in a particular country. The common denominator is that these open space resources are mostly public oriented and should be of adequate minimum size, and free from development or other encumbrances that may hinder their optimum functionality to the benefit of the entire citizenry and the conservation of the city environment. Their adequate provision and maintenance within legal requirements in Ado-Ekiti form the major concern of this study.

### **6.3 Socio-economic and environmental attributes of setbacks and open spaces**

As the above discussion shows, setbacks and open spaces serve a vital socio-economic and environmental purpose and benefit both humanity and its habitat. An important attribute of setback is the provision of a minimum distance between a building or structure in order to prevent buildings being too close to one another or the road. It is for this reason that such developments usually have a setback from the property boundary. This promotes privacy and prevents fire hazards, particularly during windy conditions. The setback therefore provides air space, especially when it is between buildings (Lusteck & Associates Inc., 2004; Akhtar, 2016).

In urban residential neighbourhoods and districts, setbacks offer ample ventilation and natural lighting to promote healthy living, safety, and convenience, and have a visible impact on the quality of the resultant outdoor open space around individual buildings, enhancing urban aesthetics, which in turn improve the overall landscape quality of the town or city (Oderinde, 1998; Adedeji & Fadamiro, 2011; and Fagbohun & Oke 2011).

Setbacks also provide avenues for the provision of public services, such as the safe placement of pipelines as in most cases they are based on street right-of-ways rather than the front property line. This allows buildings to have direct and unlimited access to public utilities. Setback are also indispensable in the outline of boundaries as they establish the accurate distance from a fixed point that determines the extent to which developmental activities or building operations can take place. In the same vein, a setback determines the limit or extent of future development in the sense that it remains permanent and can only be adjusted by means of legislation.

On the other hand, setbacks can significantly affect a property owner's right to develop land or to modify existing structures (Legal Dictionary (n.d.) b). They also provide space for the expansion of major transportation routes along their corridors as the volume of traffic increases. Where a road widening project reduces the setback to less than minimum, the existing structure may be readjusted to fit the new situation. In circumstances whereby setbacks are made so narrow as to be dangerous, the ownership title to affected structures may be revoked. Some homeowners find themselves in the difficult position of having a new highway virtually on their doorstep because the setback has been so severely reduced. Businesses may also suffer by having their premises reduced (Legal Dictionary n.d. b). Research on the establishment of dual carriage in Ado-Ekiti reveals the negative environmental effects of the project, including reduction of setbacks and obstruction of access to some buildings and properties along the corridors of dual carriageways (Ojo-Fajuru, 2010a).

For this reason, setbacks can influence property values just as severe restrictions on land can decrease its value. Breaching setback provisions can attract litigation to prosecute erring property owners, consequent upon which fines can be imposed or an order issued to remove contravening structures (Legal Dictionary n.d. b). Section 2 of the Building and Sub-division Regulations,

1984, which controls building operations in Ondo State, as well as in Ekiti State, the study area, prohibits the erection of buildings without a permit (ODSG, 1984). Section 15 of the Town and Country Planning (Building Plan) Regulations, L.S.L.N. No 15 of 1986 which is the legal tool for development control in Lagos sets out the general setbacks permissible while Section 26 allows for an approved building plan to be withdrawn on certain grounds including sub-section (b) on inadequate setbacks (LASG, 1986). Obateru (2005) notes that the factors that are considered in granting building plan approval include the “building line from the center-line of the road, the setbacks of the building(s) from the boundaries of the site or plot, and the provision of open spaces and light areas”.

Property owners whose desire to build is hampered by setback regulations have some avenues of recourse. They can apply for a variance by petitioning the local government, although variances, which are special permission to depart from zoning ordinances, are only granted in cases of proven severe hardship. Litigation over setbacks is widespread and could be prolonged, particularly when rights and compensation for property are at stake (Legal Dictionary n.d. b). In his submission on the construction of the Harare-Masvingo road dualisation project in Zimbabwe, Masuku (2003) pinpoints the lack of citizen participation in the execution of the project as a problem, especially by entrepreneurs operating along the highway. He noted that government embarked on the construction without consultation with business concerns as it was envisaged that court litigation could stall the project.

The socio-economic attributes of open spaces stem from their basic features. Mcartwright (1971) observes that open spaces as well as outdoor spaces feature in urban development at three levels, viz: to provide access to buildings; to offer equal opportunity for air, light and sunshine to reach all buildings and structures; and to offer ample space where people can gather for recreational and other social purposes. Similarly, Tipple (2001) posits that open spaces around buildings guarantee adequate provision for movement, exposure to air and daytime lighting.

On a larger scale, it has been asserted that the nature and arrangement of open spaces fundamentally determine the character and liveability of a city by presenting possibilities for a waterfront in the form of a beach, lake shore, or river edge; blueways such as rivers, streams, and

floodplains; greenways comprising of freeways, parkways, transportation corridors, transmission easements, slopes, walkways, jogging paths, and bicycle trails; urban parks and recreation areas such as plazas, neighbourhood, community, and city parks, business office/industrial parks, and institutional campuses; as well as other open space including urban forests, golf courses and tennis clubs, reservoirs, military installations, in-city gardens and nurseries, roof gardens, vacant lots, and unbuilt-upon space of development sites (Simonds, 2010).

When adequately treated and maintained, open spaces offer more natural features than any other developmental land use in the urban web. Adedeji & Fadamiro (2011) state that the quality of open spaces around buildings or structures goes a long way in determining not only the landscape features of outdoor spaces, but the type and level of human activities conducted. Gold (1980) observes that “[n]o single element can better shape and complement urban form than well-placed open space. Its ability to differentiate, integrate, or buffer different types of land use or activities is unsurpassed”. Furthermore, it bequeaths “a sense of identity and territoriality”, especially when it is sensitively designed. Open spaces can be used to define the urban form, and to stem the amorphous expansion of a neighbourhood or city by curtailing its physical size, shape, or density.

Significant research supports the notion that urban open spaces offer health benefits to city residents through exposure to a natural environment. Louv (2005) notes the positive effects nature in general has on children, even when experienced in small islands of green within a city. Urban open spaces offer citizens relief from the strain of urban environments and everyday demands. Respite could take the form of a walk or run, time spent sitting or reading, watching the birds, or essentially any time spent in the natural environment the open space offers. Research shows that when open spaces are attractive and accessible, people are more likely to engage in physical activity, which has obvious inherent health benefits. Public recreation parks are multi-use, but recent advances in best practices have prompted many cities to move away from old-fashioned and biologically impoverished ‘urban savannah’ designs, to mosaic environments, which allow full recreational use but maintain higher levels of biodiversity and hence deliver greater benefits to human well-being (Thwaites et al, 2005). A recent study in Sheffield, UK, found that the psychological benefits gained by visitors to urban green spaces

increased with their biodiversity (Fuller et al, 2007), indicating that ‘green’ alone is not sufficient; the quality of that green is important in delivering health benefits.

Open space is therefore an indispensable component of an urban area plan. This supports the recommendation that the location of future open spaces should be the first step in the land use design process, whereby environmentally sensitive areas, hazardous areas, land for resource production, cultural resources, sites for regional outdoor recreation, and areas notable for aesthetic quality are clearly delineated as open space resources (Berke et al, 2006). In the design of the Diplomatic Quarter in Riyadh following the movement of foreign embassies and diplomatic corps from Jeddah in 1985, the Saudi Arabian Government realized the importance of open spaces and integrated them with the built development. This is typified in the commercial spine within the housing areas where open spaces are intensively planted and managed to provide shade in the hot summer months in the desert region (Filor, 1991).

The availability or proximity of open space and its effect on the landscape and ecosystem influence people’s choice of residential area. In an image-based web survey of selected exurban homeowners in southeast Michigan, Wang et al. (2012) examined how the choice to acquire an exurban home is linked to the presence of open space nearby. Homeowners' relative preferences for seven different types of open spaces characterized by different ecosystem services were considered. It was established that proximity to open space is important to exurban homeowners, but they hold diverse views on the types of open spaces they prefer. The general preference is for forests, lakes, and streams; preferences for wetlands, prairies, playgrounds, and golf courses vary with education, age, or having children, while there were entirely different preferences for some homeowners for whom open space was less important.

Fadamiro’s (2000) comparative analysis of outdoor spaces and their landscape qualities in three neighbourhoods in Lagos, Nigeria, examined the use of landscape elements in the open spaces around residential buildings and suggested that improved landscape qualities directly increase residents’ perceived quality of living, supporting previous studies. He recommended that a variety of planting and the aesthetic quality of outdoor spaces and their management should be a priority in planning neighbourhoods, notwithstanding their density. The current study builds on

this recommendation by establishing the need for aggressive planting of reclaimed open spaces in order to green Ado-Ekiti.

Fadamiro (2002) used Akure, Nigeria as a case study on open space and its importance for an effective urban environment. He noted the rapid growth of a few intermediate cities due to migration from the surrounding villages and towns. This has exerted major pressure on the physical outlook of the urban environment. His evaluation of the quality of the spaces revealed that they require re-planning and re-design schemes with appropriate execution and maintenance to improve socio-economic and environmental conditions. This study drew on these findings to devise a landscaping policy framework to guide the greening of existing and reclaimed setbacks and open spaces to promote liveability and environmental sustainability.

Okeyinka and Fadamiro (2006) conducted a comparative analysis of the physical status of available open spaces and recreational facilities for children's play and youth development in the Arowomole and Bodija residential neighbourhoods of Ogbomosho and Ibadan, respectively. Their findings revealed that neighbourhoods with adequate open spaces are well planned and building codes and regulations are strictly observed, making living conditions socially peaceful and child-friendly. On the other hand, neighbourhoods with inadequate open spaces are characterized by spontaneous development; building regulations are hardly observed, and the living conditions are poor and not child-friendly, negatively affecting children and youth's social development. This research project builds on the strength of extant laws, by-laws and regulations and proposes the enactment of new ones to give legal muscle to the reestablishment, reclamation and greening of open spaces and setbacks in Ado-Ekiti.

In their contribution to the State of Environment Report, Lagos, Nigeria, Onilude et al. (2010) stated that the benefits of forests and trees in open spaces to the natural environment and rural communities cut across the social, aesthetic, health, environmental and economic spheres. In the urban setting, urban forestry or greenery imply an integrated approach to the planning, care, and maintenance of vegetation in the urban setting. This involves sustained planning, planting, protection, and maintenance of trees, forests, green space and related sources in and around cities and communities for economic, environmental, social and public health benefits. It was

submitted that urban forests are vital to the balance of human habitat ecology as they help to reduce storm water runoff, improve air quality, reduce noise pollution, sequester carbon, save energy costs by serving as cooling system, and provide wildlife habitats, and recreational areas. The authors reiterated that the greening programme initiated in 2007 as a dividend of democracy by the Lagos State Government, targets the large scale beautification of major open spaces, highways loops and corridors.

This study goes further in the replication of the city greening programme in Ado-Ekiti by moving beyond major transportation corridors into the paths of movement and incidental open spaces in the inner cities to improve socio-economic well-being, and promote liveability and inclusiveness, as well as overall landscape sustainability.

#### **6.4 Spatial development framework and construction aspects of setbacks and open spaces**

Compliance with provisions for setbacks and open spaces is important for the realization of their inherent socio-economic and environmental benefits to mankind. It is therefore important to examine the spatial requirements for setbacks and open spaces, and how they should be implemented to the required standards in the course of constructing various land uses or related physical development.

Setbacks are important statutory regulations that regulate the construction of a building or structure on any land type for various human activities. They can be traced to 1890 in the US, following the advent and increasing popularity of the electric streetcar, when distances of one to five feet (0.304 meter to 1.52 meters) between houses and to the road were common in built neighborhoods. Prior to 1920, most planned suburbs were provided with narrow lots and setbacks of five to fifteen feet (1.52 meters to 4.56 meters) between houses. Growing automobile ownership and usage led to a gradual increase in the distance and zoning laws made provision for large spaces between the house and street (Revolv, n.d.).

Adedeji and Fadamiro (2011) note that, in Nigeria, various building regulations and planning standards stipulate minimum setbacks for residential and other land use to provide adequate

spaces around buildings, and within the entire urban residential neighbourhood to enhance the landscape quality and promote healthy living. The Nigerian Urban and Regional Planning Law, Decree No. 88 of 1992 is silent on the issue of minimum setbacks for land uses as this issue is not included in the exclusive legislative list of the reviewed 1979 Constitution, which was replaced by the Constitution of the Federal Republic of Nigeria on May 29, 1999.

Sections 15-17 of the Town and Country Planning (Building Plan) Regulations, L.S.L.N. No 15 of 1986 set out comprehensive provisions on the general setbacks permissible for buildings of all types in various parts of Lagos metropolis and other areas in Lagos State. These range from a minimum of 6 meters front setbacks and 3 meters side and rear air space in residential buildings to a minimum of 9 meters front setbacks and 10 meters side and rear air space in commercial and industrial buildings, depending on the location within the State. Setbacks to public utilities and services vary from 15 meters minimum straight-line distance between a building and N.E.P.A. (now the Lagos Power Distribution Company) low-tension overhead wire, and 150 meters along the ocean or sea shoreline (LASG, 1986).

In the interests of public safety, Section 32 of the Building and Sub-division Regulations of 1984, currently in use in Ekiti State stipulates, that the minimum setback of any commercial building or structure from the plot boundary along any road shall be 4.5 meters and 7.5 meters, respectively, while the setback for industrial building is 9.0 meters. The details of the respective minimum (front, rear, left, and right-side) setbacks which must be provided in the course of constructing residential, industrial, and commercial buildings are respectively presented in Table C (Regulation 28), Table D (Regulation 30), and Table E (Regulation 32) in the Third Schedule of the Building and Subdivision Regulations, while Section 30 subsections (2), (3), and (4), and Section 39 subsections (1) and (2) specify setbacks for fences; and Section 145 subsection (n) stipulates setbacks to highways. To ensure compliance with these regulations, Section 2 subsection (1), prohibits the construction, conversion, alteration and enlargement of buildings without a permit from the Ministry, with a proviso in Section 11 that the permit lapses if development does not commence within two (2) years from the date of issue (ODSG, 1984).

S/N	TYPE OF DEVELOPMENT	SETBACK
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1	Stream	30.0m
2	Rivers	60.0m
3	Dams and Large Water Bodies	100.0m
4	Local Roads	4.5m
5	State Roads	30.0m
6	Federal Roads	50.0m
7	Low Tension (domestic) Power Line	4.5m
8	Medium Tension Power Line	15.0m
9	High Tension Power Line	45.0m
10	GSM Cell radio antennas	10.0m
11	Optical Fibre lines	4.5m
12	Main Water pipelines	15.0m
13	Quarry	100.0m
14	Railway	30.0m
15	Gas pipeline	30.0m

Source: EKSG, 2011, Ekiti State Urban and Regional Planning and Development Law No.3 of 2011, Section 34(a) Table 6. 2: Minimum setbacks for use and development of land in Ekiti State, Nigeria.

Developers are required to make provision for minimum setbacks before a planning permit is granted to commence construction. Section 34 subsection (a) of the Ekiti State Urban and Regional Planning and Development Law No. 3 of 2011 requires parties to the development and use of land to provide the minimum setbacks to water bodies, roadways, power lines, telecommunications facilities, utility lines, transportation routes, and mining pits set out in Table 6.2 above. Section 27, subsection (1) states that a developer (private or government) must obtain a permit from the Planning Permit and Building Control Agency prior to the commencement of any construction or physical development in the State, while Section 28, subsection (6) emphasizes that “[n]o development shall be commenced by any government or its Agencies without obtaining a permit from the Planning Permit Authority”. The permit is rendered invalid if the development does not commence within two years of being granted (Section 37 subsections (1), (2), (3), and (4) (EKSG, 2011).

The strict adherence to the setback regulations highlighted in section 4.1.2.1 above guarantees the provision of open spaces around buildings. More ample spaces are provided when the statutory provisions on plot ratio coverage are conscientiously implemented in the construction of buildings and structures. The Third Schedule of the Building and Sub-division Regulations, 1984 sets the maximum plot coverage permissible for various types of land uses. In Table C

(Regulation 28) on setbacks, coverage and height of dwellings, the maximum plot coverage for a low density dwelling with maximum of two (2) floors (including the basement and underground levels) is 35%, while it is 40% for a medium density dwelling with maximum of three (3) floors (including the basement and underground levels). High density residential buildings with a maximum of four (4) floors (including the basement and underground levels) are allowed a maximum of 50% plot coverage, while residential blocks of five (5) floors and above are permitted 30% maximum plot coverage, with the proviso that a tall block of dwelling units requires large air space around it.

Furthermore, the plot area coverage and setbacks of industrial buildings set out in Table D (Regulation 30) show that industrial buildings with a proposed plot area of 0.20-0.40 hectare (approximately 0.5-1.0 acre) can occupy a maximum of 50% of the plot, while industrial buildings on a plot area of 0.41-0.80 hectare (approximately 1.01-2.00 acres) have a permissible maximum plot coverage of 45%. For industrial buildings on 0.81-2.00 hectares (approximately 2.01-5.00 acres), the maximum plot coverage permissible is 40%, while those on over 2.0 hectares or 5.0 acres of land can only occupy a maximum of 35% of the plot. Table E (Regulation 32) devoted to plot area coverage and setbacks of commercial buildings provides that convenience shops on total plot areas ranging between 250-500m<sup>2</sup>, 501-1000m<sup>2</sup>, and over 1000m<sup>2</sup> can have maximum plot coverage of 60%, 50%, and 40%, respectively. Departmental stores on a plot measuring 1,000-4,000m<sup>2</sup>, and over 4,000m<sup>2</sup> should respectively cover 40%, and 35% of the plot. The maximum permissible plot coverage for wholesale buildings and warehouses for similar plot sizes is 55% and 50%, and 60% and 55%, respectively. For banks, hotels, restaurants, and similar commercial buildings, the maximum plot coverage permitted on a 250m<sup>2</sup>-500m<sup>2</sup> plot is 50%, which reduces to 40% as the plot size increases beyond 500m<sup>2</sup>; while office buildings on a plot of 250-1000m<sup>2</sup> can occupy only 35% of the plot, or 35% where the plot size exceeds 1000m<sup>2</sup> (ODSG, 1984).

Incompatibility of adjoining uses is an incidental factor that generates open spaces in planned neighborhoods. In as much as it is desirable that urban land should be used and developed in such a way that compatible uses are grouped together, this may not be fully achievable. When such a situation arises, a strip of open space, not less than 60 meters should be provided as a

buffer zone to separate the incompatible uses such as between residential and industrial areas, or between a commercial area and educational establishment (Obateru, 2005). Open space is also provided as a buffer between residential plots and highways, especially where plots fronting high traffic ways cannot be provided with a service road. Section 145, subsection (n) of the Building and Sub-division Regulations of 1984 stipulates that at least 5 meters of buffer shall be provided between the highway and the plots (ODSG, 1984). Normally, open spaces emanating from these sources should be strictly regarded as a buffer of greenery, devoid of concrete construction, rather than being seen as land reserved for future development. However, the problem is that the buffer zones are erroneously regarded as land reservation for future development, which are subsequently subdivided into plots in response to the pressure of urbanisation as it is the case in Ado-Ekiti.

With regard to recreational open spaces, provisions are made for them *ab initio* in the master plan. According to Obateru (2005), not less than 5% of urban land is earmarked for formal and informal recreation areas in cities in advanced countries, with the average percentage in American cities ranging between 5% and 9%, while Australian cities, endowed with rich recreational resources in and around them, have the highest percentage as typified by Sydney and Adelaide with 12% and 16%, respectively. The desirable percentage of urban land that should be devoted to outdoor recreational open space is at least 8% to 10%.

However, outdoor recreation areas in urban areas vary in type, function, location, and size, ranging from a minimum of 0.2 hectare for children's playgrounds to 240 hectares for urban regional parks. Topography is an important determinant of the provision of formal or active recreation areas as they require level land, or gently sloping terrain of  $2^0$  to  $6^0$ , which requires minimal leveling. On the other hand, informal or passive recreational open spaces are best suited for naturally occurring resources such as steep slopes, rugged terrain, abandoned quarries, rocky outcrops, sand and gravel tracts, water bodies, wetlands, flood plains, and wildlife, including flora and fauna, most of which are conserved in their natural state (Obateru, 2005).

The construction of an open space is preceded by its conceptualization and cognitive design for the allotted space within the neighbourhood, structure, master, or regional plan of the relevant

jurisdiction. This is produced by competent professionals such as planners and landscape architects to harness innate potential and as well achieve functionality, efficiency, aesthetics, amenity, the public good, and sustainable landscape development. Young (2009) notes, that the two-dimensional plan is the visualizing tool to organize the various elements in the three-dimensional open space.

The materials for the construction of open space facilities and gardens vary with the type, hierarchy, location, size, function, and urban design elements desired within the jurisdiction of a particular community. In broad terms, such material groups include hard and soft landscaping entities, flora and fauna, water elements, furniture, signs and graphics. They encompass inorganic or synthetic materials such as laterite, humurous soil, sand, gravel, granite, stone dust, kerbs, paving stones, cobbles, interlocking tiles, in-situ concrete slabs, asphalt overlays, blocks, bricks, wood, metals, glass, plastic, paint, flower receptacles, pots, tree planters, and according to Young (2009), other disused domestic and household items such as old boots, kitchenware, and discarded car and lorry tyres. Biotic elements like grasses, shrubs, hedges, flowers, climbers, crawlers, ground covers, palms, trees, and animals can be part of the open space. Parks and open spaces are also embellished with water in the form of pools, ponds, lakes, fountains, cascades, and artificial falls, as well as outdoor lighting poles, fixtures, fittings, furniture, sculpture, statutes, signs and graphics.

The material used to construct open space should be judiciously selected to harmonize planting with the size, shape, texture and colour of the hard materials chosen for boundaries, demarcations, structures, furniture, and paths of movement to achieve an aesthetic, harmonious and pleasant environment. Hard landscaping materials, which offer the essential structures required 'to create usable space', functionality, and 'a permanent framework for more ephemeral planting' need be considered to ascertain their cost, as well as their impact on the environment, before they are carefully installed to ensure durability. 'Selecting the right plant for the right place' is the purview of a professional garden designer, horticulturist or landscape planner. Furthermore, the relevant experience of professionals and contractors handling the project must be ascertained as intricate aspects of the construction such as some lighting and water features and many more materials may require expertise (Young, 2009).

## **6.5 Utilisation, management, and maintenance of setbacks and open spaces**

The realization of the inherent socio-economic and environmental benefits of setbacks and open spaces to mankind is a factor of proper utilisation, management, and maintenance. The various ways in which setbacks and open spaces are used or abused, appropriately managed or mismanaged, and better maintained for goal achievement are scrutinised below. There can be no doubt that suitable utilisation, management, and maintenance of setbacks and open spaces are tantamount to spatial functionality and urban landscape sustainability, which are key problems in African cities including Ado-Ekiti.

Apart from creating ample spaces from roadways and between adjoining buildings, setbacks also ensure adequate ventilation and sufficient natural lighting, ease of access, safety, convenience and urban aesthetics (Oderinde 1998; Adedeji and Fadamiro 2011; Fagbohun & Oke 2011). Residential, commercial, industrial, and public buildings, as well as circulation routes, utilities and services should thus be sufficiently set-back to provide air space around them. In fact, the wide spacing of buildings offered by setbacks ensure fire safety by providing sufficient spaces for the passage of firefighting equipment in emergency situations (Horst-Schliemann ed. 2014). In Fairfax County, the zoning regulation does not permit any “accessory structure or use” on setbacks within its jurisdiction except a statue, a basketball standard or flagpole under certain conditions. When located in a front yard, the basketball standard should not be less than 15ft (4.57m) and 12ft (3.66m) to a front lot line and to a side lot line, respectively, with a restriction on its use between the hours of 8pm and 9am (Fairfax County, 2014).

In Nigeria, the prohibition and prevention of the conversion of setback to other uses differs from one statutory provision to another. Both Section 31 of the Nigerian Urban and Regional Planning Law, Decree 88 of 1992, and Section 37 of the Lagos State Urban and Regional Planning Board Edict, 1997 (which was adapted from the former) stipulate the grounds for rejection of a development permit application. Apart from the five common grounds, i.e., the plan’s conformity with the approved scheme, the plan being in the course of preparation, its potential to have a major (negative) impact on the environment, the plan’s propensity to cause nuisance to the community, and development that negates any other condition specified in regulations made

pursuant to the decrees, sub-section (d) of Section 37 of the Lagos State Urban and Regional Planning Board Edict, 1997 added another ground, stating that “the proposed development falls within setback of road, Power Holding Company of Nigeria, Plc. (now Lagos Power Distribution Company) high tension power line, drainage channel, canal or water body” (FGN, 1992; LASG, 1997).

Section 34 subsection (a) of the Ekiti State Urban and Regional Planning and Development Law No.3 of 2011 make it compulsory for developers to make provision for minimum setbacks before a planning permit to commence building operation is granted, thereby implying that a developer must observe the minimum setbacks to water bodies, roadways, power lines, telecommunications facilities, utility lines, transportation routes, and mining pits as listed in Table 6.2 above.

Spaces so created and designated as setbacks should be managed and maintained as public open spaces and green areas, free from all encumbrances or ownership tenure, and devoid of any concrete development in whatever guise. Adedeji and Fadamiro (2011) state, that enhancing the landscape quality to promote healthy living is the basis for the ordering of minimum setbacks for all land use. They add that outdoor landscape features and human activities depend on the quality of open spaces around buildings or structures, especially when such spaces are formally and tastefully treated, and well maintained. However, this is not the case in most African cities. According to Barredo and Demicheli (2003), since the majority of global populace now resides in urban centers, it is implied that most of the socio-economic and environmental phenomena impacting humanity unfold in these urbanized spaces of agglomerated diverse activities with concomitant impacts on the landscape.

In Durban, South Africa, the densely populated central part of the city is surrounded by sprawling peril-urban suburbs consisting of moderately populated townships, as well as extensive informal settlements housing an estimated 22% of the population (Economist Intelligence Unit, 2011). Musvoto (2011) observes that the main zones of the city such as the old CBD, inner city areas, old industrial areas, suburbs, and exurban areas are characterized by a duality of space ranging from formal to informal and support activities that vary from legal to

criminal. Informal activities dominate the sidewalks, pavements and setbacks to the road, and sometimes spill onto the roadway in the CBD.

Designated a megacity by the United Nations in 2002 with an estimated population of 17 million, Lagos' population increased to 18 million in 2006, and was projected to reach 20.19 million in 2010 and 24.5 million in 2015 (Olokesusi, 2011). Given such rapid population growth, demand for land has assumed astronomical proportions, leading to the World Bank estimation that two in every three of residents in the Metropolis dwell in informal settlements (Siemens, 2011a). The urban poor's daily struggle to survive has put the goal of sustainability on the backburner, shifting the focus from environmental issues with dire consequences (Wekwete, 1992) including wanton encroachment on setbacks around buildings and transportation corridors (see Figure 6.2).

This trend is repeated in most Nigerian urban centers. Igbokwe (2006) notes that it gives rise to a myriad of problems ranging from depletion of verdure and environmental degradation to overstretched infrastructure, which are fallouts of a bloated population coupled with a lack of planning. Egunjobi (1999) observes that Ibadan, capital of Oyo State, Nigeria is a classic example, where there is no clear-cut vehicular access to an estimated 50% of houses in the traditional core areas, and as much as half of the roadways including the setbacks of the few available ones are clogged with illegal trading activities.

The misuse and abuse of setbacks are common in Ado-Ekiti, the case study area. Illegal development abounds on setbacks along federal highways, state and local government roads, river and stream channels/flood plains, canals, high and medium tension power lines, and within residential, commercial, and industrial area neighbourhoods, as well as public spaces in the capital cities.



(Source: Economist Intelligence Unit 2011 African Green City Index: Assessing the environmental performance of Africa's major cities, p.68 [Online]. Available: [www.siemens.com/greencityindex](http://www.siemens.com/greencityindex) [Accessed 06 August 2012]).

Figure 6. 2: Population explosion, survival strategies and ineffective physical planning inducing chaos, disorder, and informal activities that encroach on setbacks and open spaces around buildings and roadway along Nnamdi Azikiwe Street, Lagos Island.

Encroachment takes the form of construction of buildings, apartments, rows of shops, illegal markets, transportation terminals, temporary structures made of assorted materials such as wood, planks, flat iron sheets, roofing sheets, wire gauze, plastic and nylon, and movable structures like containers, counters, carts and wheelbarrows.

Other trading activities also occur and setbacks are used to store articles of trade such as building materials like iron rods, pipes, wire mesh, water tanks, wood, and planks and construction materials such as blocks, laterite, sand, gravel, and water, workshops. They are also used for the installation of generators, and as unauthorized parking, temporary rubbish heaps, and refuse dumps, among others. Preliminary observation shows that these activities proceed unhindered by any of the three levels of government, or by the planning authorities. The result is a disorderly, congested and degraded environment. The inhabitants pursue their personal goals while ignoring the maintenance of a wholesome environment as a collective responsibility.

Open spaces cover anything from the surrounding spaces and back gardens in private residential houses to larger and more functional types such as school playing fields, recreational grounds, race courses, golf courses, polo grounds, public parks, botanical gardens, and national and regional parks and open forest land. They include natural landscapes such as hills, valleys, mountains and water areas like rivers, lakes, oceans and bays (Fadamiro, 2002). Open space is also conceived as public land purposely left open in the map of the city for development into gardens, recreational grounds, landscape buffers, and places where cultural and social activities or functions take place. The need for social and cultural activities is the major motive for the provision of public open space (Oruwari, 2002). In terms of utilization, Mcartwright (1971) opines that open spaces generally are useful as means of accessibility, light, air and sunshine to other land uses, and thereby guarantee convenience and satisfaction for the populace in their various day-to-day socio-economic and cultural pursuits.

In the realms of planning and urban design standards, parks and open spaces resources provide the much needed complementary environmental, recreational, scenic, cultural, historic, and urban design elements within the human settlement. Accordingly, the characteristic goals of parks and open spaces include quantity in terms of total percentage coverage, locational proximity, physical and visual accessibility, geographical distribution, equity, environmental protection, coordination, balance of places and activities, shaping, sustainability, urban design, and connections (American Planning Association, 2006), while Simonds (2010) argues that “the character and liveability of a city are largely determined by the nature and arrangement of its open spaces”. Therefore, the urban open space system should be embellished with greening and furnishing to create natural areas in the city (Ojo-Fajuru & Adebayo, 2014b). Ample urban open spaces would “provide aesthetic and psychological relief from urban development” (Springgate, 2008) and also offer quality recreational opportunities, conserve the environment, and guarantee sustainable placemaking and urban landscape development in Ado-Ekiti.

There appears to be a dearth of quality opens space in major Nigerian urban centers as the land allocated for this purpose has hardly been developed as such, while the open spaces that are available are poorly maintained, willfully misused and wantonly encroached upon. Researchers have studied the quantitative lack, and qualitative deficiency of open spaces in major cities and

noted the scarcity of such spaces, as well as poor landscape and environmental qualities in Lagos (Mabogunje, 1962), Zaria (Ipiniwa, 1979), Ibadan (Obateru, 1981), Enugu (Osiji, 1989), Benin (Oso, 1991), Akure (Falade, 1998), Ado-Ekiti (Ojo-Fajuru, 2003) and Abuja (Jibril, 2010). Falade (1998) observes that the severe deficiency of open spaces and the rampant abuse of existing facilities as revealed by urban land use studies are features of Nigeria's constantly growing urban areas. He adds that the situation is exacerbated by the failure to develop land allocated for such purposes in housing schemes as typified in Ile-Ife where 224 open space development proposals totaling 47 hectares of land within private sector residential layout were approved between 1960 and 1983, but none was developed in line with its original purpose. Rather, most of these open spaces have been converted to other uses mainly commercial, while existing ones are either poorly maintained or encroached by commercial activities.

In 1979, the International Planning Associates (IPA) proposed the City of Abuja, the FCT of Nigeria as 'a city-beautiful' to be developed in phases and occupy an area of about 250 square kilometers. Implementation commenced in Phase I on a total land area of about 7,076 hectares of which about 1,260 hectares (17.81%) is allocated to green area development in the form of open spaces and recreational facilities such as gardens, children's playgrounds, neighborhood parks, outdoor games spots, sport centers, and district and national parks. The green zones were to incorporate open areas along rivers, valleys, hilly patches, slopes and incidental open spaces (FCDA, 1979). The concept was backed by a master plan that arranged land use, transportation, infrastructure, housing, and social, economic and recreational services in an interrelated and coordinated manner (Abba, 2003).

The nascent capital was to be an epitome of cultural and natural environment conservation; five of the eight guiding objectives of the city master plan deal with fundamental issues relating to the environment (FCDA, 1979). Unfortunately, as the pressure of development mounted on the fledging city, land reserved for open green areas was abused and substantive chunks of the areas were reallocated to developers and usurped for other land uses that distorted the original plan (Jibril, 2010). Atebije and Razak (2014) detailed the various forms of irregular and undesirable physical development that crept in through illegal means shortly after implementation of the master plan commenced such as the erection of corner shops and structures in green areas and

flood plains; encroachment on rights-of-way of existing roads, walkways, and undeveloped road corridors; building on underground utility lines; physical development on circulation areas and parking lots within markets; and unapproved change of use by developers, among others. These unwholesome developments led to the massive demolition exercise that affected 4,305 structures across the FCT between 2009 and 2014 in an effort to clean and beautify the city. This study intends to capitalize on the success story of the FCT to repossess illegally usurped public spaces in Ado-Ekiti and establish equitable green areas.

Ojo-Fajuru's (2003) study on planning for recreational open spaces in Ado-Ekiti presented an analytical typology of open spaces, and revealed an acute shortage of functional recreational open spaces. He revealed a trend of quantitative and qualitative inadequacies, and a poor management and maintenance culture which has led to underutilization, misuse, abuse and encroachment on available recreational open spaces. He submitted that increased recreational open space development, landscape treatment and proper maintenance would enhance general sanitation and environmental quality in the city. Similarly, Fadamiro and Atolagbe (2005) attributed the poor quality of the Nigerian urban environment to the inadequacy, misuse and mismanagement of urban open spaces, and highlighted the work of various researchers on the insufficiency and abuse of open spaces which has negative effects on the physical environment. The case study noted that the Akure urban core revealed inadequacies in the provision and management of the open spaces. In similar manner, the current research study aimed to evaluate and redress the quantitative and qualitative deficiencies, misuse, abuse and encroachment on open spaces and setbacks in Ado-Ekiti, the capital city of Ekiti State.

## **6.6 Perceptual issues relating to setbacks and open spaces in the city setting**

In general, terms, education connotes a form of learning in which the knowledge, skills and habits of a group of people are transferred from generation to generation. It is the process of imparting or acquiring general knowledge and the development of character, mental power or the powers of reasoning and judgment, thereby generally preparing oneself or others intellectually and morally for mature life. Perception refers to the recognition and interpretation of sensory information, and how an individual responds to such information. The process whereby one takes in sensory information from the environment and uses it to interact with the environment is

termed perception; sensory information is absorbed and churned out in a more meaningful and qualitative form.

In the context of this study, education and awareness of the significance and worthiness of setbacks and open spaces in the built environment is required to prevent their misuse and mismanagement and probable damage to the environment. Carr and Schisslar (1969) observe that perceptions and memories of the city are determined by the forms of the environment itself. Lowenthal and Rich (1972) note that the structure of what is to be seen is of paramount importance in determining what is seen. Environmental psychology offers insight into the behavioral tendencies of the urban resident who perceives parks and natural elements as positive features of the environment (Sorte, 1991). Porteous (1976) notes, that the physical environment greatly influences human behavior. Green et al. (2003) note, that environmental design needs to take cognizance of the knowledge, values, perceptions, attitudes and behavior of those living or working in or visiting a particular area.

Fadamiro (2002) classifies the spaces in the city as ranging from those occupied by the street and park system to the totality of the extensive city; an intermixture which is further dichotomized into urban spaces in form of city floor bordered by building frontages, and natural or open spaces as nature's creation defined by trees, shrubs, rocks, ground surfaces and water bodies randomly occurring in and around the city. He portrays the city's open spaces as characterized in appearance by natural verdure rather than surrounding structures, and notes that this is an important urban design yardstick that needs be studied and utilized to educate the people on the importance of these verdant spaces in the effective sustenance of the living, working and recreational environment.

Ekan (2006) observes that the living environment is a generic and veritable means of social communication and cultural interaction through which feelings; values, aspirations, attitudes, mind-set, data and information are exchanged. Lynch (1984) concurs that the perceivable vividness of the environment promotes a sense of belonging that builds relationships and delight in the unique nature of places and people. Green et al. (2003) affirm that psychological

attachment to the landscape promotes citizens' desire to participate in dynamic and future-oriented community development initiatives and programmes. Ekan observes that:

[t]he landscape qualities, sense of time and visual diversity that contributes to associated perceptions of sense of place are what make landscape design to transcend the third dimensional realm of normal design process to the fourth dimension, the living realm or the growth component where changes are inevitable, and in which landscape design must accommodate. (Ekan, 2006, p. 54)

Generally, open spaces including setbacks, are not just areas for recreation, but serve other related functions like giving form and aesthetic value to a community. Indeed, they serve very basic human needs and values. Banon (1976) asserts that there is a certain physical relief in open spaces that cannot be underestimated. It offers visual relief from the tangled; jarring and often-monotonous sight of urban development and a sense of orientation and community identity. While very few people can picture the location of every street in town, most can readily describe the location of an attractive open space, thereby giving credence to the ability of these placemaking spaces to define the character of places, especially in the urban setting.

Unfortunately, the struggle for daily survival in the face of daunting socio-economic challenges seems to take priority over environmental sustainability in urban centers, justifying Mabogunje's (1981) earlier assertion that the issue of liveability in Nigerian cities has occupied the front burner in recent times. Okeyinka and Fadamiro (2006) observe that the provision of recreational facilities is perceived to be a luxury rather than a necessity for healthy living, as a result of which 'supportive and safe neighbourhoods' endowed with open spaces and green areas are undermined. More often than not, the poor that are ignorant of statutory provisions on development control encroach on green areas in order to survive. To them, such areas are a waste of scarce land resources, or tangible space to develop to make ends meet.

It is therefore important to precisely define how open spaces, whether privately or publicly owned, partially or jointly owned, setbacks or easements, are provided and what functions they should perform relative to human activities and development opportunities in a community. While the manner of open space utilization impacts on the character of settlement development, the converse is true; land allocated for such open spaces should not be regarded as a leftover of

development, or as mere decorative ‘green splotches for parks’ to beautify land use maps. Instead it should be acknowledged that it is germane to “determining the character of the urban environment” (Fadamiro, 2002) and should be nurtured and protected.

### **6.7 Legal framework on the establishment, development control and maintenance of setbacks and open spaces in urban areas**

The existence of open spaces in human settlements is not a chance occurrence, but naturally endowed, predating the built environment. The fact that the vast spaces in which cities flourish were once open vegetated land, which appears to be shrinking and disappearing due to rapid growth and expansion, renders the establishment, development and maintenance of setbacks and open spaces critical components of urban land use conservation. Achieving this objective calls for the formulation of a formidable legal framework to enforce the protection of valuable natural resources, not only to curtail the visible effects on the physical appearance of cities, but to sustain a liveable environment for urbanites. In view of the foregoing, and as antidote to a disorderly and unhealthy environment, various planning laws, regulations, building by-laws and codes recognize and strengthen the indispensability of setbacks and open spaces by making provision for their establishment, development control and maintenance in towns and cities.

One of the early enactments is the Building Adoptive By-law Order, Western Region Laws of Nigeria, No. 171 of 1960. It was made in the exercise of the powers conferred by sections 65 and 66 of the Public Health Law, 1957, and section 82 of the Local Government Law, 1957 upon the Regional Minister charged with the responsibility for health matters in the defunct Western Region of Nigeria now encompassing Lagos, Ogun, Oyo, Osun, Ondo, Ekiti, Edo and Delta States. The by-laws describe a setback as the fixed distance between the building line and the front property line. Section 6, sub-section (1) stipulates that the external face of the front wall of any building shall not project beyond a building line which runs parallel to the front boundary of the building site, and is “set ten feet back”, that is, 3.05 meters from that boundary. The Order goes further to emphasis in sub-section (2) that eaves and projections of buildings such as hoods over doors and windows, shallow balconies and other architectural features “may project to a limit of four feet”, that is, not more than 1.22 meters beyond established building lines, with the

proviso that such projections are “self-supporting”, meaning that they are free from any column, truss, pillar or post of whatever material (Western Region of Nigeria, 1960).

In terms of open space, the Western Region Building Adoptive By-laws Order, 1960 makes provision for ample exterior spaces around buildings in section 5, sub-section (1) on plot area coverage whereby it orders that no person shall build or erect any dwelling house in such a way that the total area covered by the building and all appurtenances shall exceed one half (50%) of the total area of the site, preserving the remaining 50% as open outdoor space. Furthermore, section 8, sub-section (1) providing for side setbacks in the spacing of buildings, states that there shall be an open space of not less than five feet six inches (1.68 meters) wide between any building and the side boundary of the plot, particularly where the building height does not exceed 25 feet or 7.6 meters. The width of side setbacks increases commensurately to not less than ten feet, that is, 3.05 meters as the height of the building goes beyond 25 feet or 7.6 meters (Western Region of Nigeria, 1960).

As far as open space between buildings on the same plot is concerned, section 8, sub-section (2) of the Building Adoptive By-laws Order (Western Region of Nigeria, 1960, p.3) enacts that:

[w]here the height of any main building does not exceed twenty-five feet [7.6 meters] there shall be an open space of ten feet [3.05 meters] in width between the main building and the out-houses appertaining [sic] thereto; where the height of the main building exceeds twenty-five feet [7.6 meters] but does not exceed forty feet [12.19 meters] such open space shall not be less than fifteen feet [4.57 meters] in width; and where the height of the main building exceeds forty feet [12.19 meters] such open space shall not be less than twenty-five feet [7.6 meters] in width.

It is clear that the width of spacing of buildings and their appurtenances on the same plot increases as the height of the main building becomes higher. The intent of the by-law is to create abundant open spaces for planting, light, and air, and allow for living and recreation in an orderly, healthy and conducive environment.

In order to ensure compliance with the provisions of this law, the Building Adoptive By-laws Order states *inter alia* in section 3, sub-section (1) that no building whatsoever shall be constructed without prior approval by the judicial health officer, works supervisor and town

planning authority, based on four (4) copies of appropriate plans and working drawings submitted by the developer (Western Region of Nigeria, 1960). This aims to ensure that the required ratio of plot coverage and minimum setback are strictly observed to create and maintain adequate spacing between buildings, and generous open spaces in the built environment. It was on the basis of this 1960 Building Adoptive By-law, now defunct, that other emerging states formulated their planning laws such as the Town and Country Planning (Building Plan) Regulations, Lagos State Laws of Nigeria, 1986 and the Building and Sub-division Regulations, OD.S.L.N. No. 14 of 1984 currently used in Ondo and Ekiti States.

The provisions of Nigeria's controversial Land Use Act No. 6 of 1978 are relevant to urban and regional planning in general and urban land use activities in particular. Sections 1 and 2 vest control and management of "all land comprised in the territory of each State of the Federation" in the Governor to be "held in trust and administered for the use and common benefit of all Nigerians" as empowered by law. Section 2, sub-section (1) (a) places control and management of all land in urban areas in the hands of the Governor, assisted by the Land Use and Allocation Committee in an advisory capacity. This implies that the decision of the Governor holds sway on all issues relating to the use and disposal of state land (FGN, 1978). This assists the physical planner as it reduces encumbrances in planning any vacant land or zoning any part thereof for any use including public open space. It is submitted that this section has the potential to promote positive urban and regional planning powers under other Nigerian planning laws.

Similarly, section 28, sub-sections (1) and (2) empower the Governor to revoke the statutory right of occupancy in the overriding public interest including obtaining control over land required for, or in connection with planned open spaces in urban or rural development or settlements as reflected in the interpretation of "public purposes" contained in section 50 (g). This section is equally advantageous to the pursuit of positive urban and regional planning as it removes hindrances and strengthens planning powers; the Governor plays a crucial role in planning decision making in the State by delegating his powers to the Commissioner (FGN, 1978).

It should be emphasized that section 43 of the Land Use Act not only outlaws but stipulates penalties for unauthorized use of land. Sub-section (1) states that with the commencement of the Decree, it shall be unlawful for any person in an urban area to “(a) erect any building, wall, fence or other structure upon; or (b) enclose, obstruct, cultivate or do any act on or in relation to any land”, whether licensed to him by right of occupancy or not, without the permission of the Governor. The expression ‘any land’ encompasses all land in the territory of urban areas including setbacks and incidental or planned open spaces. Sub-section (2) states that such illegal actions are tantamount to contravention and, on the order of the Governor, must be removed to restore the land to its original state.

Sub-section (3) affirms further that anyone that breaches any of the provisions of sub-section (1) has committed an offence that, on conviction, attracts punishment of one year imprisonment or a fine of ₦5,000.00, while sub-section (4) provides that whoever flouts the order of the Governor as to the removal of unauthorized development and restoration of land to *status quo ante* as contained in sub-section (2) shall be guilty of an offence punishable, on conviction, by a fine of ₦100.00 for each day of non-compliance with the Governor’s directives (FGN, 1978). The Land Use Act of 1978 thus clearly frowns on any act of unlawful development including those on setbacks and incidental or planned open spaces, and seeks to revert such misused spaces to their original state prior to the commencement of the prohibited development, and punish offenders. However in practice, this hardly ever occurs and illegal developments abound in the nooks and crannies of Nigerian urban centers with government seeming to look the other way.

Section 1 of the 1986 Town and Country Planning (Building Plan) Regulations, Lagos State Laws of Nigeria, No 15 states that, “any developer intending to carry out any proposed development on any land in the state shall apply to the Town Planning Authority for approval of the building plan”. Section 4 provides that all developers intending to alter an existing building must seek written approval before carrying out such proposed alteration or addition. Section 5 reiterates that “no building shall be altered or added to or repaired or renovated [on any land] in Lagos State...” while section 6 prohibits fencing work on any land without the prior written approval of the Town Planning Authority (LASG, 1986). Thus, any development carried out on any land in Lagos State requires permission from the relevant authority prior to the

commencement of such building operations. This provision is also often violated, as people embark on change of use, building alterations, renovations and additions, some of which are projected onto setbacks and open space, without permission or recourse to the authorities.

The Lagos State Town and Country Planning (Building Plan) Regulations, 1986 set out perhaps the most comprehensive and all-encompassing regulations on the provision, development control and maintenance of setbacks and open spaces in any urban area in Nigeria. Having established zoning classification and plot sizes for all types of land uses, and permissible uses as well as the maximum number of units within each zoned district, sections 8 and 9 of the 1986 Regulations make clear provision for open space plot coverage and the specific setbacks permissible for development in the various types of uses in different locations, particularly in the Lagos metropolis.

Sections 10-13 of the Lagos State Town and Country Planning (Building Plan) Regulations, 1986 provide for maximum site coverage of 40% for residential and commercial use, educational institutions, places of worship and mixed use development especially residential/commercial use. Section 14, subsection 1 of the 1986 Regulations touches on development within other zones not mentioned above such as industrial, institutional, other mixed uses and conservation/forestry zones, which should be strictly guided by and conform with the approved State Regional Land Use Plan, relative to an approved scheme, layout or planning order. Subsection 2 of this section reemphasizes that “for the avoidance of doubt”, the minimum plot size, and the corresponding maximum extent of plot coverage permissible for different classes of building/development “shall be regulated according to the limits specified in Schedule I except otherwise specified in these regulations” (LASG, 1986).

More specifically, section 18, subsection 1 of the Lagos State (Building Plan) Regulations, Law of 1986, deriving from Table 2 of Schedule I, allows for maximum plot coverage of 40% in some low density residential areas of metropolitan Lagos such as Victoria Island, Ikoyi, and the GRAs in Apapa, Ikeja, Maroko and Ogudu, Ogba, Omole, Magodo Scheme, Lekki Peninsular, and other government residential schemes. Subsection 2 provides that residential coverage in other areas shall not exceed 50% unless otherwise stipulated elsewhere in the Law. By virtue of

subsection 3 of the 1986 Regulations, similar maximum plot coverage of 40% is applicable to all medium density residential areas in GRAs and other areas unless otherwise stated in the Regulations.

While subsection 4 of the 1986 Regulations limits the maximum permissible plot coverage on commercial or industrial plots to 70%, subsection 5 pegs the maximum site coverage for a place of worship at 40% apart from other requirements such as parking spaces. Subsection 6 generalizes that the allowable “maximum plot coverage for all other types of proposals shall not exceed 50%” unless otherwise “specially” laid down in “a scheme, Planning Order, or Land Use Plan”. Subsection 7 focuses on Central Lagos and the core of old towns in the State. As in other Yoruba towns and cities, the average plot size in these areas is substandard. The section stipulates that “the maximum developable plot shall be 150m<sup>2</sup> and maximum coverage shall not exceed 50% of the entire plot”. This stipulation aims to ensure ample openness in the urban setting, but is hard to enforce given the ever increasing demand for prime spatial locations for commercial activities and office accommodation in the core areas, and the reality of the inelasticity of land, coupled with astronomical land values, resulting in the development of small plots beyond the permissible limits with concomitant effects on setbacks and open spaces in the central areas of cities.

Without prejudice to the aforementioned, subsection 8 of section 18 of the 1986 Regulations makes it expressly clear that the provisions contained “in Table 3 of Schedule I to these regulations shall also apply to this regulation”. The implication for the maximum plot coverage ratio is that, by and large, a larger percentage, that is 60%, or not less than an average of 50% site coverage of the various land uses should be left as, devoted to, and maintained as open spaces within the Lagos metropolis. This is expected to provide ample outdoor spaces within the built-up areas, thereby providing a palpable sense of openness in the environment across the entire State.

In terms of setbacks, section 15 of the Lagos State (Building Plan) Regulations, Law of 1986 requires that the drawings of any building plan seeking approval must conform with certain stipulated setback regulations which vary from a minimum of 6 meters front setbacks in

residential buildings as contained in subsection (a), to a minimum of 9 meters front setbacks and 10 meters side and rear air space in commercial and industrial buildings in line with subsection (b). Subsection (c) provides that residential buildings in Victoria Island, Ikoyi, and Ikeja GRA shall observe a minimum of 9 meters front setbacks, compared to a minimum of 6 meters front setbacks stipulated for residential buildings in Gbagada, Ogba, Omole, Magodo, Ogudu, Maroko and any other areas as stated in subsection (d). The variation is a reflection of differences in location, plot size, density and land value from one district to the other.

Furthermore, section 15 subsection (e) of the 1986 Regulations states that for buildings on Lagos Mainland, among other areas in Lagos State, a minimum of 6 meters and 3 meters shall be maintained as front setbacks and side air-spaces, respectively, except where such buildings are over three floors, when they shall have a minimum of 4.5 meters rear air-spaces except where otherwise stated by the regulations. For buildings which do not exceed three floors on Lagos Island, the minimum permissible air-space on all sides is 3 meters, while buildings rising higher than three floors shall have minimum air spaces of 4.5 meters around them as contained in subsection (f). In terms of buildings for purposes other than residential, subsection (g) states that, “every commercial or industrial building shall have minimum of 9 meters set back in front, while the sides and rear airspace shall be a minimum of 6 meters”.

The objective of providing and maintaining, within the ambit of law, adequate space that ensures safety and health is further promoted in section 16 of the Lagos State Town and Country Planning (Building Plan) Regulations, 1986 which deals with setbacks to public utilities and services. Subsection (a) part (i) states that “the minimum setback distance between a building [and] a railway line shall not be less than 21 meters from the edge of the railway line...” or in conformity with the minimum setback specified in the Railway Act, while part (ii) provides that buildings are not allowed within a radius of 60 meters from an unmanned level crossing. For an electricity power line, subsection (b)(i) stipulates a 15 meters minimum straight line distance between a building and N.E.P.A. (now Lagos Power Distribution Company) low tension overhead wire of 11KV or 32KV, which increases in part (i) to not less than 30 meters and 60 meters for overhead 132KV and 330KV cables, respectively. Setbacks to the Nigerian National

Petroleum Corporation (N.N.P.C.) pipeline are the subject of subsection (c) which orders a minimum horizontal distance of not less than 45 meters between a building and oil pipeline.

However, subsection (d) accommodates periodic changes in these setback regulations by stating that “the minimum distance of a building to any public utility may be subject to amendment from time to time as directed by the appropriate statutory body”. While the intentions of these enactments are commendable, their faulty implementation or outright neglect seems to have stalled the achievement of the desired results, to the extent that large portions of open spaces created by setbacks under various categories of power lines in urban centers have been grossly encroached upon and the government appears to be doing nothing about it.

More abundant open spaces and sustained green spaces are meant to be legally established in urban and rural landscapes. Section 17 provides for minimum setbacks to water bodies, gorges, canals and drainage channels. Subsection (a) provides for a minimum distance of not less than 150 meters between any building and the ocean or sea shoreline while subsection (b) requires that “the distance between any building and the mean high water level of the Lagoon shoreline shall not be less than 75 meters”. It is also clearly stipulated in subsection (c) that “the distance between any building and any river shall not be less than 60 meters”, while subsection (d) requires that a minimum setback of 45 meters be maintained between any building erected near a seasonal stream and “the said stream or any water body within water catchment zone...” Rounding off the sections on setback provisions in the Lagos State Town and Country Planning (Building Plan) Regulations, subsection (e) 1986, states that “the distance between any building and a gorge/canal/drainage shall both [sic] be less than 15 meters in built-up areas, and 45 meters in new areas” (LASG, 1986).

The Building and Sub-division Regulations of 1984, currently operational in Ondo and Ekiti States contain provisions that gave legal backing to the establishment, control and maintenance of setbacks and open spaces in towns and cities in the old Ondo State prior to the carving out of Ekiti State. In terms of setbacks, section 28, subsection 1 requires that the siting of all domestic, that is, residential buildings including out-houses, garages and associated structures, except fences or boundary walls, be guided as prescribed in the third Schedule of the law. It is on this

basis that subsection 2 stipulates that “the setback of any domestic building or structure of not more than two stories, from the plot boundary along any road shall be a minimum distance of 4.5 meters”, while subsection 3 adds that “[a]ny domestic building of more than two floors shall setback (sic) from each boundary an additional distance of 1.5 meters per additional floor”. However, many buildings appear to have been constructed with far less setback spaces than required by the law irrespective of the number of floors.

Section 32, subsection (3) states that the minimum setback of any commercial building or structure from the boundary of the plot along any road shall be 7.5 meters in accordance with the requirements stated in subsection (1), to the effect that every commercial building and appurtenances “shall be sited in such manner as to conform with the dimensions set out in Table E of the third Schedule”. Subsection (3) provides further that any commercial building of more than two floors needs to be setback from all boundaries by an additional 1.5 meters for each additional floor. This regulation also applies to setbacks for industrial buildings, which are set at 9 meters in section 32, subsection (4); likewise, subsection (5) provides for an additional distance of 1.5 meters per additional floor for every industrial building of more than two floors. Section 30 subsections (2), (3), and (4), and section 39 subsections (1) and (2) stipulate a height and setbacks for fences of a minimum distance of 1.5 meters from the plot boundary along any road. Section 42 provides that outhouses shall be setback at a distance not less than 3 meters from the main building or any other adjacent building or structure (ODSG, 1984).

The Regulations of 1984, which have not been reviewed since coming into effect 30 years ago, also contain setback requirements for a group of plots. Section (33) states that “where a group of two or more plots are to be combined for development as one plot, the ...setback requirements stipulated for each plot shall apply”, but this remains difficult to attain. In terms of buildings occupying the junctions of major roads, section 34 provides that all the building structures as well as fences, boundary walls, gates, hedges and plantings, among others, must be setback a distance of at least 4.5 meters from such junction, such that the traffic sight line is free of all obstructions. In order that the setback spaces are absolutely free from all encumbrances, section 34 states that:

[e]aves and projections, such as hoods, over doors and windows as well as balconies, verandahs and other building components may project to a limit of not more than 1.22 meters (4 feet) beyond building, (setback) lines provided they are self-supporting and are in no way connected to the ground by means of pillars, columns, posts or struts and are at least 2.14 meters (7 feet) above the ground level. (ODSG, 1984, p. B 50)

However, the law takes into consideration the tendency for plot sizes to be drastically reduced at the expense of observing setback regulations along arterial roads and at intersections. In light of this, section 145 requires that adequate information be provided on the contents of proposed schemes, such as plots, the front of which opens onto high traffic ways such as highways or expressways as stated in subsection (n). It is stipulated therein that such plots shall be provided with “a parallel service road so that the plots do not abut directly unto such traffic ways” or alternatively, the “plots shall back on to such traffic ways with at least 5 meters (15.2 feet) of buffer [open green space] between the plot [sic] and the highways”. Subsection (o) provides that, in order to maintain access, all plots shall lie directly alongside a street, and in so doing, should have “a minimum frontage of 15 meters in the case of residential plots at the end of a *cul-de-sac* and 30 meters (100 feet) in the case of other uses”. As for plots on intersections otherwise known as corner plots, subsection (p) makes it clear that such outer plots “must be at least 6 meters (20 feet) wider than other [inner] plots”, i.e. a 18m x 36m plot becomes 25m x 36m (80' x 120'). This provision seeks to ensure that developable space within the plot is not shortchanged, while allowing ample space for clear visibility at road intersections. However, this provision is flagrantly abused as most people prefer to own such corner plots, which they tend to develop, to the maximum extent disregarding allowance for setbacks on the erroneous assumption that the whole plot belongs to them.

To ensure compliance with these regulations, section 2 subsection (1), prohibits the construction, conversion, alteration and enlargement of buildings, structure or appurtenance without a permit from the Ministry and section 11 provides that when such permit is granted, it becomes invalid if development does not commence within two (2) years from the date of issue, and is thereby subject to revalidation (ODSG, 1984). This clause seems to not have any effect as setback spaces are often developed without recourse to the approving authority.

The Ekiti State Urban and Regional Planning and Development Law No. 3 of 2011 is the current planning law, which provides for the establishment, control and maintenance of setbacks and open spaces in towns and cities in the State. Rather than setting the setback requirements in terms of land use, it relates the use and development of land to conformity with stipulated minimum setbacks to developmental entities in the categories of water bodies, roadways, facilities and utilities, and other transportation routes as presented in Table 6.2 (page 142) adapted from the Law (EKSG, 2011).

Based on this premise, section 34 subsection (a) stipulates that one of the requirements that developers are expected to meet before a planning permit is granted to commence building operations is to make provision for the minimum setbacks listed in Table 6.2 such as 30 meters to streams, 60 meters to rivers, and 100 meters to the edge of dams and large water bodies, in order to safeguard life and property from danger within the flood plains along the banks and shores. The respective minimum setbacks to federal roads, state roads, and local roads are 50 meters, 30 meters, and 4.5 meters, while the permissible minimum setbacks to low tension (domestic) power lines, medium tension power lines, and high tension power lines are 4.5 meters, 15 meters, and 45 meters, respectively.

Telecommunications facilities such as GSM cell radio antennas, and optical fibre lines should have a minimum of 10 meters, and 4.5 meters setbacks, while utility lines including main water pipelines and underground cables should be given minimum setbacks of at least 15 meters. Quarries, as well as other transportation routes like railways and gas pipelines should be setback to a minimum observable distance of 100 meters, 30 meters, and 30 meters, respectively. While these statutory requirements have implications for the availability of open spaces, as well as the safety and security of lives and property along the transportation routes and communication facilities, there appears to be a low level of compliance, given the usurpation of setback spaces for informal development (EKSG, 2011).

In order to ensure strict compliance with these regulations, section 27, subsection (1) of the Law makes it compulsory for the developer (whether private or government), to obtain a development permit from the Planning Permit and Building Control Agency prior to the commencement of

any construction work or physical development on any land in the State. Section 28, subsection (6) warns that “[n]o development shall be commenced by any government or its Agencies without obtaining a permit from the Planning Permit Authority”. It adds that the permit becomes invalid if development does not commence within two years of its granting in accordance with the statutory provisions of section 37, subsections (1), (2), (3), and (4) of the Law (EKSG, 2011). Unfortunately, these restrictive provisions seem to exist only on paper as development activities without appropriate permits appear to be the order of the day since buildings and structures abound on setbacks and open spaces in most parts of the city.

The National Building Code was initiated by the Federal Government and drafted by the now defunct National Council of Works and Housing. Input was received from all stakeholders in the built environment. The draft Code was fine-tuned and eventually approved by the Council in 1991, but was not ratified for use nationwide by the then Federal Executive Council. This led to the representation of the draft Code to the 2<sup>nd</sup> National Council on Housing and Urban Development held in Port Harcourt six years later. Eventually, in 2005, the Council directed that the document be widely circulated to all stakeholders for input. Having undergone restructuring from its initial three parts to four parts, the National Building Code was finally adopted to cater for the need for a national building policy aimed at salvaging the environment in Nigerian towns and cities in view of their lack of planning and the incessant collapse of buildings, fire infernos, environmental abuse and other disasters. In the preface to the first edition of the Code in August 2006, the then Honourable Minister of Housing and Urban Development, Dr. Olusegun Mimiko, now Governor of Ondo State observed that:

the National Council on Housing and Urban Development deemed it necessary and initiated the process of evolving the National Building Code to put a stop to the ugly trends in the Building Industry... [and hoped that] ...this National Building Code will open a new vista in the Building Industry and eliminate or reduce to the bare minimum the incidence of collapsed building syndrome in Nigeria: promote safety and qualitative housing for every Nigerian. To achieve these laudable objectives, every tier of government, (federal, state and local) must imbibe the spirit and intent of this Code. (Federal Republic of Nigeria, 2006, p.iv)

Section 6 of the Code dwells on environmental requirements, and subsection 6.1.1 on general issues stipulates that its provisions shall govern the provision of light, ventilation, and sound transmission in all buildings intended for human occupation. It adds that “every building and

structure hereafter erected and every building, room or space which has been changed shall be constructed, arranged and equipped to conform to the requirements of this section.” Subsection 6.1.2 provides that where more than one building is located on a plot, or where a building is placed on the same plot as existing building(s), the uncovered area of plot must provide an adequate source of light and ventilation for all buildings intended for human occupation.

Subsection 6.2.4.2.1 emphasizes that natural ventilation of an occupied space shall be through windows, doors, louvers or other natural openings to the outdoors, while subsection 6.2.8.8 recognizes the sanctity of relevant extant laws by explicitly stating that “there shall be provided adequate setbacks and air-spaces as stipulated by local regulations, and by-laws to ensure adequate levels of ventilation and lighting”. While this aims to promote the provision and maintenance of setbacks and open spaces in the urban landscape, in reality this is not the case.

The National Building Code legislates against encroachment on setbacks and open spaces in section 6.3 devoted to general building limitations, and subsection 6.3.2.2 on street encroachment, where it is stated that “except as herein provided, a part of any building hereafter erected and addition to an existing building heretofore erected” should not project beyond “the plot line or beyond the building line when such line is established by the zoning law or any other statute controlling building construction”. Similarly, subsection 6.3.3.4 on ornamental columns provides that such columns or pilasters, including their bases and moldings used to embellish the main entrance of the building shall project not more than 300 cm or 0.30 meters, while subsection 6.3.3.10.5 sets out that “every roof and skylight of a marquee shall be sloped to downspouts which shall conduct any drainage from the marquee in a manner not to hang over, spill roof run-offs on the sidewalk”.

The National Building Code, 2006 is in harmony with existing national and state laws on the need for a developer to obtain development permits prior to commencing work on a site. Subsection 11.6.1.4 on plans, specifications and special permits gives rise to subsection 11.6.1.4.1 on temporary construction that requires that:

[b]efore any construction operation is started, plans and specifications shall be filed with the Code Enforcement Division/Section/Unit showing the design and construction of all temporary construction interfacing the public highways access and service. Approval shall be secured before the commencement of any such work. (Federal Republic of Nigeria, 2006, p. 357)

On special permits, subsection 11.6.1.4.2 makes it mandatory that all special licenses including those for “the storage of materials on sidewalks and highways, for the use of water or other public facilities for storage and handling of explosives shall be secured from the administrative authorities having jurisdiction”. Thus, the unauthorized usage of setbacks, sidewalks and roadways for any storage purposes is illegal.

The Code also provides for the enforcement of its provisions in subsection 13.2.4.2, which states that the Code Enforcement Division/Section/Unit shall ensure compliance with the regulations and requirements stipulated by the Code. Erring developers are brought to book in accordance with the provisions of section 13.3 on violations and sanctions. Subsection 13.3.1 of the Code defines violation as “any act that is performed, caused or permitted by any person, firm or corporation that is in conflict with, or not in compliance with the provisions of this Code”, while subsection 13.3.2 makes it unlawful for an individual or corporate entity “to erect, construct, alter, extend, repair, remove, demolish, use, or occupy any building or structure violating the provisions of this code”. The Code stipulates sanctions for contraventions in subsection 13.3.5 which states that:

any person who shall violate a provision of this Code, or shall fail to comply with any of the requirements thereof, or who shall erect, construct, alter, or repair a building or structure in violation of an approved plan or directive of the Code Enforcement Division/Section/Unit, or of a permit or certificate issued under the provision of this Code shall be guilty of an offence punishable under existing law. (Federal Republic of Nigeria, 2006, p. 432)

In conclusion, adequate statutory provision has been made for the establishment, control and maintenance of setbacks and open spaces in towns and cities in the Nigerian Southwest Geopolitical Zone in general, and Ekiti State in particular, under whose jurisdiction the study area falls. It is equally clear that some developers may have violated these provisions and that there has been widespread encroachment of illegal structures on setbacks and air spaces that should normally be devoted to greenery. This is suggestive of the ineffectualness of these regulations in the state capital. How effective the planning regulations, by-laws, codes, and extant laws are in

establishing setbacks and open spaces in the cities, and controlling development within them is one of the subsidiary questions that this study sets out to answer.

### **6.7.1 Master planning policies and implementation of strategies for setbacks and open spaces**

Ogbazi (1992) notes, that, in simple terms, a master plan is a prepared document that is intended to monitor and ensure well-organized development of a town, city or region with emphasis on the need for yardsticks for compatible and orderly coexistence of land uses. Essagha (1997) states that in the Nigerian context, such a plan is a long term official document at the dictate of federal, state or local government, endowed with maps, drawings, sketches and written reports to guide the path of future socio-economic and physical development of designated regions, settlements, or places for a period spanning five to 20 years. A master plan has also been viewed as a generic term that connotes comprehensiveness and applies to urban and regional planning as a modern approach to achieve the central objective of creating an aesthetically pleasing environment for human habitation.

It is on this basis that a master plan is defined as a blueprint adopted by municipal councils to guide the development of their region (Okeke, 1998a). However, Meyerson (1960) asserts that the city has largely become an artefact of business as most building and development in Nigerian towns and cities, conservatively put at over 60%, is undertaken by the private sector (Agboola, 1988) that is profit-oriented rather than interested in championing community welfare or environmental sustainability. This leads to non-compliance with extant laws and statutes, with debilitating effects on plot ratio development, the urban land use structure and the totality of the city environment.

It is in this light that the master plan can be seen as a long term comprehensive plan prepared in response to prevailing developmental challenges and needs, to guide, direct, and control current and future growth (Dube, 1977). The need to curtail the excesses of developers that profit at the expense of environmental sanity required the formulation of planning laws and regulations that provide the legal framework within which master plans are prepared by government to chart the

course of development in the various hierarchies of human settlement. The master plan is a useful tool to control and direct development, as well to prevent and prohibit undesirable development in towns, cities, and regions (Olujimi, 1998). A master plan, “defined by eminent schools of thought” to encompass “various knowledge and ideas of master planning as a planning tool” is therefore not only a comprehensive long range physical development plan, but includes analytical and graphical details on land use zoning and proposals to achieve optimal population, land use activities, facilities, and economic activities (Ubani, Mba, & Ugwu, 2014, p. 2). However, the realization of these carefully laid out physical, socio-economic and legal attributes of the master plan are, more often than not, derailed by the vagaries of dynamic change such as politics, funding, capacity building and societal behavioural patterns.

In recognition of the importance of plans in the overall spatial development of the country, the Nigerian Urban and Regional Planning Law, Decree No. 88 was promulgated in 1992. In Part 1, the law makes provision for the preparation of specific types of physical plans at the three levels of government. Section 1, subsection 1 provides for plans at federal level that include the national physical development plan, regional plan, sub-regional plan, urban plan, and subject plan; subsection 2 stipulates the types of plan at state level such as the regional plan, sub-regional plan, urban plan, local plan, and action plan; and subsection 3 specifies plans at local level, including the town plan, rural area plan, local plan, and subject plan (FGN, 1992). Olanrewaju (1998) points out that since the Law identifies three levels of plan preparation in accordance with the existing three tiers of government, it is expected that a detailed town plan, local plan, and subject plan, from which the master plan is derived, will be prepared at local level, while plans at national and state levels will deal only with broad policy issues especially as they affect more than one state.

This implies that local government will key into state policy directives, while states will operate in line with national policy guidelines. The expected outcome is harmonious overall national development that impacts positively on socio-economic transformation, and the sustenance of the physical landscape and the environment. This has proven difficult to achieve due to faulty policy implementation, juridical conflicts and political differences between the three tiers of government, with the local level at the receiving end.

Indeed, most Nigerian settlements evolve and develop spontaneously, devoid of any formal planning. The tradition of urban land use master planning only took root in Nigeria with the preparation of the Master Plan for Metropolitan Lagos in 1962. Similar plans were made for Kano in 1963, and by 1967, master plans had been produced for Calabar, Kaduna, Ilorin, Lokoja, Jebba, and Offa. In 1976, the master plan for Abuja was prepared to guide development in the nascent FCT. Thereafter, more urban master plans were produced for major metropolitan towns and medium sized towns, but while some were commenced but not executed, many more were proposed but never implemented. Hence, rather than pursuing integrated development, the order of the day is piecemeal or phased expansion that lacks overall coordination and eventually leads to sprawl (Okeke, 1998b) that degenerates into an unwholesome city landscape and environment.

It should be noted that master plans are not meant to be static or rigid, but should be regularly monitored and constantly reviewed in line with the dynamics of policies and development. However, master plans in Nigeria including those for Abuja, FCT and countless others have existed for several years without any meaningful review. Rather, they are abused or bastardized. Ubani, Mba, and Ugwu (2014, p. 6) capture the anomaly inherent in the subjugation of the laudable objectives of the Abuja master plan:

...in spite of the numerous achievements which have been made in the physical development of Abuja since its implementation began in 1980, there have been significant distortions and unwholesome deviations which inhibit the full realization of the provisions of the master plan. These distortions and deviations are being corrected through the on-going demolition of illegal structures and settlements; and the restoration of the green belts, open spaces, parks and gardens, and sewage channels.

This is a national malaise that extends across the nation's regional capitals, towns and cities. Since the master plan serves as a policy guide to chart the course of orderly development (Suleiman, 1998), it is therefore an indispensable document to achieve healthy, liveable and sustainable communities.

The World Health Organisation identifies the characteristics of a 'healthy city' as one that, among others things, offers a clean, safe, high-quality physical environment and sustainable ecosystem (WHO, 1988), with minimum setbacks, open spaces and greenery as vital components of the city master plan. Equating the liveable city concept with the healthy city concept, Uyanga

(1998) contends that if the city is to be a place in which it is pleasant to live and raise children, it requires a friendly, quiet, safe and sane environment, typical of areas with positive neighbourhood identity, lush green spaces, ample urban spaces and intuitively urbane places for everyday life and experience. Unfortunately, this ideal situation is far from being obtained in Nigerian towns and cities, old and new, that are characterized by a disordered, unfriendly and non-natural environment. Given the steady rise in the urban population and attendant demand for recreation, public bodies' interest in the planning and management of all forms of leisure has been rekindled in recent times. The master plan plays a threefold role in fulfilling the needs of urbanites. Firstly, it provides for their recreational needs; secondly, it acts as a generator of recreational needs for the city and the surrounding regions; and thirdly, it is a recreational resource, providing support services to leisure industries. Not only do these different functions represent considerably different approaches to urban leisure planning, they also require the formulation of different master plan provisions. Hence, recreational resources planning should embrace both outdoor recreation and cultural and entertainment recreation. The issues of location and access are crucial in recreational resources planning and implementation (Burtenshaw, Bateman & Ashworth, 1991).

Modern cities are epitomized by various neighbourhood open space projects which are communal in nature and largely independent in terms of planning, funding and implementation from the municipal authorities. Such collective initiatives include community gardens, parks, playgrounds, and reclamation or clean up areas adorned with green landscaping. Other communal efforts revolve around murals and other outdoor art, as well as special events like road shows and walking tours with neighbourhood guides (Partners for Liveable Places, 1989). Such mutual schemes have yet to gain ground in most Nigerian urban settlements.

The overall concept of the master plan centers on the creation of an environment which promotes a healthy and first class living environment for its residents while at the same time creating a definite character and identity. A case in point is the Victoria Garden City (VGC) plan in Lagos. Planned for 2,000 families on approximately 200 hectares, the VGC plan provides for distinctly segregated areas such as residential, industrial and recreational land uses. The residential areas are planned with distinct house designs, with each design type having its own identity and

character. Some of the social amenities provided within the housing estate were segregated so as to maintain and guarantee privacy and tranquility for residents. These include an elementary school, recreational park, service industries, sports center, dispensary, country club, and shopping mall, places of worship, community bank, post office and hotel. Other amenities include interlocking paved roads, a drainage system, sidewalks, street lighting with underground cables, a treated water supply, electricity, and telephone facilities. The estate was divided into three phases, and deviates totally from the conventional grid-iron concept with the employment of a network of 'T' ended cul-de sac streets, with maximum privacy and security, and a high premium on a green environment with large frontage and backyard gardens within each residential unit, coupled with elaborate horticultural plantings, which adorn a huge recreational park to meet residents' leisure needs (Kuye, 2009).

While guiding public and private developers to promote health, wellbeing, functionality, convenience and aesthetics in the community, the master plan also opens avenues for safeguarding the large investment in the construction and maintenance of housing categories, schools, industries, commercial concerns, movement paths, drainage, water, electricity, waste management, open spaces and recreation areas. The master planning concept, particularly the open space system and green landscaping option for Ado-Ekiti is relevant to this study in the sense that if carefully prepared and properly handled, it is a vital development control tool for the provision and implementation of policies on setbacks and open spaces in relation to other land uses. It has the potential to create a conducive and functional environment where all city attributes are harmonized for the enjoyment of citizens in the capital city of Ekiti State.

#### **6.7.2 Evidence on contraventions and encroachment to justify reclamation of illegally developed setbacks and open spaces in cities**

In the Nigerian context, the sharp rise in the urban population from the pre-independence period to the current era derived from massive urbanization, which led to the aggregation of a teeming populace, infrastructure, goods and services that are not commensurate with the economic and physical development of towns and cities. This poses serious challenges to environmental sustainability (Ojo-Fajuru & Fashina, 2012). In recent years, most of these urban centers have experienced debilitating effects on the urban morphology ranging from various land use types to

urban facilities such as transportation, waste management, as well as air spaces, open spaces, parks and greenery. Ever-increasing demand for space for human activities, coupled with ineffective planning and regulatory mechanisms in the fledging urban centers, as well as the inelastic nature of land resources, has led to the wanton abuse and deliberate encroachment on setbacks and open spaces.

The various laws on such contravention in Nigerian towns and cities with particular reference to Ekiti State were set out above. Such efforts date back to 1932 when the Town and Country Planning Act fashioned after the British Town and Country Planning Act of 1932 was promulgated in colonial Nigeria to control the development of land by means of planning schemes formulated by legally established local authorities. The schemes were confirmed and approved by the Ministry of Health. This was followed by the 1946 Town and Country Planning Act, which was a landmark enactment as it placed development under national control.

The 1946 Act was the first truly national planning law since the Amalgamation of 1914. Its geographical scope extended beyond the Western Region to the Eastern and Northern regions with its enactment as the Nigerian Town and Country Planning Ordinance, Cap 155 of 1948. Commencement was backdated to 28 March 1946. The Town and Country Planning Law Cap 123 of Western Region followed in 1956. It was reviewed only once, 46 years later and this culminated in the promulgation of the Nigerian Urban and Regional Planning Decree 88 of 1992.

The specified aim of Decree 88 of 1992 is to replan, improve, and develop parts of Nigeria by appointing planning authorities and securing development control through the preparation of planning schemes, and vesting authority for all planning activities in the Governor who can delegate his powers to the appointed authorities (FGN, 1992). An important provision that emanated from the 1946 Act, resurfaced in the subsequent Act of 1971 Cap 123 of 1956, and was entrenched in the most recent Decree 88 of 1992, is that permission should be sought and obtained from the local planning authority before any development can be lawfully undertaken. This clause was reproduced in other regional and state laws, thereby establishing the illegality of unauthorized development, contravention, or even inertia.

It is light of this that section 3 sub-section (1) of the Building Adoptive Bye-laws Order, Western Region Laws of Nigeria, No. 171 of 1960 makes it unlawful to embark on any building or rebuilding operation in whatever guise without a development permit from the applicable town planning authority (Western Region of Nigeria, 1960). The Land Use Act of 1978 also outlaws unauthorized development of land and stipulates appropriate penalties for contraventions in section 43. Sub-section (1) provides that it is against the law for any person in an urban area to either erect any building, wall, fence or other structure upon; or enclose, obstruct, cultivate or perform any act on or in relation to any land, be it legally allocated to him by right of occupancy or not, without the permission of the Governor (FGN, 1978). Thus, no development in any form may take place on any land within the boundary or region of urban areas including setbacks and incidental or planned open spaces without the written consent of the Governor. This clause affirms the illegality of any development without the prior approval of the relevant planning authority, irrespective of its conformity or non-conformity.

Similarly, sections 1, 4, 5, 6, and subsection (6) section 28 of the Lagos State Town and Country Planning (Building Plan) Regulations, No 15 of 1986 make it mandatory for developers to apply for and obtain a development permit before the commencement of any proposed development, or carrying out of proposed alterations, additions, repairs, renovation or fencing of any building on any land in the State (LASG, 1986). This includes setbacks and open spaces. However, these by-laws have not been effective in preventing illegal, uncontrolled and unlawful development on setbacks and open spaces in the burgeoning metropolis on a daily basis, implying that the statutory provisions have yet to be implemented to the letter.

Likewise, section 2 subsection (1), and section 11 of the Building and Sub-division Regulations of 1984, also applicable to Ekiti State, outlaw the construction, conversion, alteration and extension of buildings and related structures without a development permit from the appropriate authority (ODSG,1984). Section 27, subsection (1) and section 28, subsection (6) of the Ekiti State Urban and Regional Planning and Development Law No. 3 of 2011 require absolute observance of minimum setback regulations, which makes it compulsory for developers to apply for and secure a development permit from the Planning Permit and Building Control Agency before any building operation or spatial development is embarked upon in the State. Section 37,

subsections (1), (2), (3), and (4) enforces the two-year maximum time frame for the validity of an approved development permit (EKSG, 2011). However, once again these enactments have yet to address widespread amorphous development across the urban landscape of the state capital in particular, and other major towns in Ekiti State.

Section 6.3, subsections 6.3.2.2, 6.3.3.4 of the National Building Code prohibits encroachment on setbacks and open spaces and subsection 6.3.3.10.5 outlaws obstruction or overhanging of any building component on setbacks and surrounding spaces. Subsection 11.6.1.4 of the Code corroborates the provisions of extant national and state laws compelling developers to obtain development permits prior to commencing building or rebuilding work on any land, while subsection 11.6.1.4.2 makes the unauthorized storage of materials and commodities on setbacks, sidewalks and roadways illegal without a special permit (Federal Government of Nigeria, 2006).

As part of the requirement for planning permission prior to construction, section 33 of the Nigerian Urban and Regional Planning Decree 88 of 1992 makes it compulsory for all developers to submit a detailed environmental impact statement in respect of an application to develop residential land in excess of two hectares; or permission to build or expand a factory, construct an office building exceeding four floors or occupying 5,000 square meters of rentable space, and to develop a major recreational facility. This provision aims to address the environmental abuse and degradation which has resulted from decades of unguided development and physical activities on open space and land resources in Nigerian rural and urban landscapes.

While it thus clear that various laws guide physical development in Nigerian cities, including Ado-Ekiti, developers disregard these laws and intentionally or inadvertently usurp public spaces for personal aggrandizement, undermining the collective public interest, community goals, and environmental sustainability. The assertion that there is no ignorance in law justifies the need to reclaim encroached setbacks and open spaces in these cities.

The legal position on reclamation is clear. For example, section 43, sub-section (2) of the Land Use Act states that illegal actions are tantamount to contravention and, on the order of the Governor, must be removed to restore the land to its original state. Similarly, section 60 of the

Nigerian Urban and Regional Planning Law, Decree 88 of 1992 states *inter alia* in subsections (c) and (d) that where a developer contravenes the provisions of a planning law or any regulation made pursuant to a law, the Control Department shall have the power to pull down the building or to restore a piece of land to the state it was in prior to the commencement of the building operation (FGN, 1992). However, this has only been done in a few cases of glaring or proven contravention. Rather, it is commonplace for the illegal development to remain standing with the 'X' mark for demolition vividly displayed in red, never to be demolished as required by law.

The Control Department is empowered by section 47 of the 1992 Decree to serve an enforcement notice on the owner of residential, commercial, industrial or any other land use in any location, when development commences without formal approval. Subsection 2 gives retrospective effect to the service of such enforcement notice as it extends to unauthorized development which took place before the commencement of the Decree. Section 59 stipulates that any developer that fails to comply with the terms of enforcement notice or disregards an order to stop work is liable to a fine not exceeding N10, 000.00 in the case of an individual, and N50, 000.00 for a corporate body. The Control Department is further empowered by section 60, subsections (c) and (d), among other options to order an erring developer to pull down a building, or to restore a piece of land to the state it was in prior to the commencement of the building operations (FGN, 1992). However, these orders seem to remain on paper and are not followed up on.

When this option fails, section 61 requires the Control Department to serve a 21-day demolition notice on the perpetrator of the illegal, defective or offensive development. After this, section 62 gives legal muscle to the Control Department, by default, to take the necessary action to demolish the defective building, while section 63 mandates the Department to recoup from the developer all expenses reasonably incurred in the course of the demolition (FGN, 1992). These clauses, implying reclamation, are replicated in appropriate sections of other state planning laws including the Ondo State Building and Sub-division Regulations of 1984, and the Ekiti State Urban and Regional Planning and Development Law No.3 of 2011, thereby justifying government's efforts to reclaim encroached setbacks and open spaces in Ado-Ekiti, the capital of Ekiti State.

In their study on development control methods and strategies in Lagos State, Fagbohun and Odumosu (2009) note that the general pattern of contravention cuts across developers in private and public or government-owned housing estates. Nine of the eleven generalizations made from the survey data involve contraventions that suggest violation of minimum required regulations leading to encroachment on plot coverage, setbacks and open spaces such as encroachment on setbacks to roads and open spaces; exceeding plot coverage and density requirements; illegal additions, conversion and alterations, both internal and external, to an existing building; building of fence walls without permission; and erecting temporary structures, sheds, and kiosks on vacant plots, open spaces and setbacks. Others are blocking access roads with building materials, motor spare parts and other merchandise; affixing billboards and notice boards; on-road parking; abandoning damaged vehicles on roads; and illegal conversion of open places to garages and motor-parks. The authors observed that the level of contravention varied as population density, location, and the level of commercial development varies from one area to another in the state.

Ojo-Fajuru (2012) corroborates the disconnection between the statutory provisions of some extant laws on development control and their influence on the urban landscape in Lagos Metropolis. Research shows that most development does not conform to relevant sections of the Town and Country Planning (Building Plan), L.S.L.N. No. 15 of 1986 on maximum plot coverage, which should not exceed 40%, while the remaining undeveloped portion should be devoted to landscaping and other surface treatment. The legal provisions on general setbacks and developers' responsibility to provide drainage and to plant ornamental trees on the sidewalks abutting their properties are flagrantly contravened. The majority of the study respondents claimed that they were not aware of these laws, particularly in cases where spaces around buildings and structures were either encroached on or left with scanty soft landscaping elements and greenery, thereby accentuating the widening imbalance between man and nature in the metropolis. Studies carried out in Otto, Ebute Metta on Lagos Mainland reveal several illegal structures springing up along railway setbacks. These structures, which constitute health hazards and security risks, are used for petty trading, hotels, night clubs, restaurants and related uses which not only strew the remaining open spaces with refuse, and pollute the environment, but also attract and harbor people of questionable character, which increases the crime rate,

encourages corruption and pose risks to the security of lives and property in the area (Yusuf &Ojo-Fajuru, 2013).

Generally, the tendency to use setbacks and open spaces for unintended purposes can be attributed to rapid urbanization and the uncontrolled influx of migrants into urban centers. The attendant population increase leads to increased demand for space in the face of scarcity and the inelasticity of land resources giving rise to encroachment on available space and high levels of land use change and mix in the urban center. The situation is exacerbated by people's innate desire for economic benefits and the ineffectiveness of development control by appropriate government organs. The socio-economic and environmental implications occasioned by uncontrolled space usurpation and uncoordinated mixed uses in the cities such as overcrowding, increasing scarcity and rising values of landed properties, non-conformity or incompatibility of uses, negation of provisions on minimum planning standards, overstretched facilities and amenities, environmental pollution and degradation, inevitably lead to poor environmental quality, as well as non-inclusive, unfriendly and unliveable environments that are taking their toll on people and the urban landscape. This is the anomaly which this research study set out to address and redress in Ado-Ekiti, the fledging capital city of Ekiti State.

#### **6.8 Relevance of public awareness, people's priorities, functional usage and socio-cultural integration on issues relating to greening setbacks and open spaces for environmental sustainability in the city landscape**

'Public' connotes something that is of, or concerning the people as a whole, or done by or for representing the people, or the people as a whole. To be aware means to be conscious: not ignorant, having knowledge and being well-informed (The Concise Oxford Dictionary).The Random House Dictionary (2014) portrays awareness as the state or condition of being aware; or having knowledge; or consciousness. The United Nations Environment Programme (UNEP, 2014) posits that public awareness refers to the important role that community enthusiasm and knowledge has in building sustainable societies, and that delivering knowledge to remote communities requires strategies for effective communication. Hence, public awareness is a situation where the people are generally conscious and know much of what is going on in the

environment. This will enable citizens to take an active part in the events, actions and entities that shape that environment.

As a political principle or practice, public participation has been recognised as a right that empowers the public to participate in certain community-based or neighbourhood-oriented activities. The term is used interchangeably with the concept or practice of stakeholder engagement and/or popular participation, as it generally seeks and paves way for the consideration of those who are likely to be affected or concerned by a decision. The underlying principle of public participation is that those who will be affected by a decision, action or development have the right to be involved in the decision-making process. When public participation thrives, public opinion and contribution will most likely influence the final decision. Public participation translates to empowerment as a strong element of democratic governance (Atlee, 2008; International Association for Public Participation (IAP2), c.2008).

The United States Environmental Protection Agency Guide (EPA, 2014) describes public participation as “any process that directly engages the public in decision-making and gives full consideration to public input in making that decision”. It is perceived as a process rather than a single event since it consists of a series of activities and actions by stakeholders and sponsor agencies over the full lifespan of a project, performing the functions of both informing the public and obtaining input from them. Public participation therefore affords stakeholders, that is, those that have an interest or stake in an issue, such as individuals, interest groups, and communities, the opportunity to influence decisions that affect their lives. Parker and Doak (2012) affirm that the manner in which the public interest is deemed to have been served is closely tied to “the stated expected outcomes of planning as well as the process followed in planning”. A recent study (Ojo-Fajuru, 2013) found that effective public awareness initiatives are paramount in the successful achievement of public project planning, evaluation, implementation, financing and management.

It can be argued that public awareness and participation on the issues of setbacks and open spaces is very low in urban centers in developing countries. Nigeria is no exception. Studies carried out in some urban centers confirm the dearth of open spaces and setbacks and

encroachment of the few available ones in Lagos State (Olokesusi, 1994), Imo State (Anozie, 1994), and Ondo State (Fadamiro, 2000). Adedeji et al. (2009) observe that uncontrolled development without adequate building setbacks due to the high cost of land resulted in the maximisation of land use in LAUTECH Neighbourhood, Abeokuta. Adedeji and Fadamiro point out that ignorance of the benefits of landscaping leads to poor urban environment aesthetics and functionality. In a recent study in Ado-Ekiti and Akure, Ojo-Fajuru and Adebayo (2014a) pinpoint the general unavailability of open spaces and greenery, which act as the lungs of cities and play a crucial role in enhancing aesthetics, environmental quality, liveability, and the character of a place in the urban web. Another study (Ojo-Fajuru & Adebayo, 2014b) established that the qualitative deficiency of furnished open spaces has adverse effects on the health, liveability, comfort, recreation and productivity of residents, and as well eroding the potential of the capital cities to be regarded as great places.

The African continent suffers high rates of poverty. According to Adegeye and Coetzee (2014), poverty of various dimensions is still of critical concern in South Africa, where the majority of the populace live in a state of destitution, while the minority live in affluence. The lingering apartheid legacies of poverty and inequality have no geographical boundaries, despite more than two decades of attempts to address these issues. Jeeva and Cilliers (2014) submit that, more often than not, African cities are perceived as chaotic and incomprehensible since they lack the form, rationality and functionality on which the European city is founded. Of all the cities in Africa, only Port Louis, Cape Town and Johannesburg are among the top 100 liveable cities in the world, while Lagos, Nairobi, and Harare featured among the 25 African cities ranked in the bottom list of 220 countries.

This is the consequence of a lack of formal planning, widespread informal land use activities, and the steady expansion of informal settlements into suburbia. Robyn (2014) noted that informal settlements would not be eradicated in the foreseeable future. The World-o-Meter website observed that the global population hit the 7 billion mark in 2011, and would rise to an estimated 9.6 billion by 2050, with one in every seven inhabitants of the world residing in an informal settlement or slum. The gap between rich and poor continues to widen in Nigeria. Socio-economic and security challenges and the daily struggle for survival in the face of

daunting problems take priority over environmental awareness and sustainability in urban centers. This is exacerbated by a lack of conscious planning. Cohen (2006), Daramola & Ibem (2010), Wald and Hostelter (2010), and Kadi et al. (2012) note that rapid urbanization has affected the aesthetic quality of urban areas, that are characterized by informal, haphazard and hazardous development, reducing the availability and effective use of open spaces. Urbanization has led to the shrinkage of the few available open spaces in the Nigerian urban setting, and the gradual disappearance of open spaces in the quest to provide for accommodation encourages slum formation (Ogundele & Jegede, 2011), while the few remaining ones are poorly planned, implemented, and maintained.

Popular *juju* (local) music maestro of Yoruba stock, Sunday Adegeye Adeniyi a.k.a King Sunny Ade's 1980s song asserted, "*ki l'a o je, oun l'agba ki l'a o se*", meaning "what shall we eat surpasses what shall we do". Mabogunje (1981) notes, that survival occupies the front burner in Nigerian cities. High levels of poverty and ignorance of statutory development control provisions cause encroachment on green areas, which are misconstrued as a waste of scarce land resources which could be developed to meet socio-economic needs. Recreational facilities are regarded as a luxury rather than a necessity for healthy living, to the extent that informal settlements are more prevalent than safe neighbourhoods endowed with open spaces and green areas (Okeyinka and Fadamiro 2006). The lack of ample open spaces for landscaping and greening in Ado-Ekiti, which is continuously depleted due to space contestation for informal sector proliferation, is another issue that this study sought to address.

The various ways in which setbacks and open spaces can be functionally utilized, economically productive, and socio-culturally integrated to achieve environmental and overall landscape sustainability in the city setting is important to this study. The benefits associated with the ample endowment of such spaces in the functionality, liveability and pleasantness of the city cannot be overemphasised. In terms of functional usage, setbacks, which are the distance from the base building line to the point where a building may be constructed, must be maintained and devoid of permanent structures. Anything short of this is encroachment. Setbacks are important among buildings and along roadways so that structures are not placed too close together, to enable access to metered public utilities. Moreover, setbacks can be used as green spaces to beautify the

road or right-of-way in order to create an aesthetically pleasant environment, and serve the purpose of relaxation. They are also zoning features that function as pedestrian walkways. Setbacks offer direct benefits to humanity by providing ample space to accommodate the flooding of streams and rivers, thereby protecting people, structures, infrastructure and facilities from damage and hazards, and protecting and improving ground water quality.

Along coastlines, shorelines and beaches, setbacks provide buffer zones between the ocean and coastline infrastructure within the natural expansion and contraction limits of the beach. They mitigate damage to waterfront properties during high tidal waves resulting from hurricanes and cyclones. Setbacks improve vistas and accessibility along the beach, and provide privacy for owners of waterfront properties, and for tourists using the beach or coastline for recreation.

Open space is regarded as any undeveloped land within the boundary or designated envelope of a neighborhood which provides or has the potential to provide direct or indirect social, economic or environmental benefits to communities (Ahern, 1991). Alabi (2009) and Wald and Hostelter (2010) equate an open space in an urban setting to vacant land developed as gardens and recreation facilities, or undeveloped or underdeveloped land which has value for recreational purposes, amenity, conservation, or other natural resources, scenic or historic landscapes or areas of outstanding natural beauty such as water bodies, valleys, hills and mountains.

Viewed from another perspective, Kabir (2006) sees open spaces as informal or formal parks, water courses, agricultural land, private gardens or city squares, which serve ecological functions, and promote improved air quality, biodiversity, and water storm management. For the American Planning Association, open space is any land that is free of all encumbrances such as “residential, institutional, commercial or industrial use and may also include conservation areas protected by law”. Tang and Wong (2008) include parks, gardens, playgrounds, beaches, and other amenity areas developed and maintained by the public authority in their list of open spaces. Based on the above discussion, open spaces are grouped into three categories, namely, utility open space, corridor open space, and green open space. Utility open spaces are based on the productive capacity of land and its utilization, and are spaces reserved for the provision of certain urban activities. They include land for flood control, urban utility space, and a reserved or

preserved area. Corridor open spaces are areas within the urban environment that are intentionally created or left as traffic corridors, such as rights-of-way (ROW), and landing space; while green open spaces refer to natural sites for recreation and buffer zones, which are mostly limited and intensive depending on the level of development or proposed future use. Typical examples are urban, natural, or even primitive parks.

Hence, open spaces are functionally usable or operational and use quality landscape development techniques to provide a protected, safe, convenient, and high quality aesthetic working, living and leisure environment. They also nourish, protect, and sustain natural areas, such as urban forests and conservation areas, promoting biodiversity, provided they are properly utilized, managed and maintained. The role of purification which open areas perform, which can be likened to breathing spaces in the urban setting, is unique and makes an important contribution to well-balanced development in the built environment and a sustainable city environment. It is based on this premise that this study is indispensable to expose the destructive effects of public open space usurpation on functionality, aesthetics, environmental quality, recreational opportunities, health, urban comfort, and inclusion (Ojo-Fajuru & Adebayo, 2016) as leeway to bringing back the greens and reestablish biodiversity, cleanliness, equity, liveability and landscape sustainability into Ado-Ekiti, the fledging capital city of Ekiti State.

## CHAPTER SEVEN

### THE URBAN LANDSCAPE, LANDSCAPING, AND THE GREEN CITY

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#### 7.0 Introduction

This chapter discusses issues relating to the landscape, urban landscape, scenic landscaping, and the green city. It includes the understanding of the landscape, landscaping, soft/green landscaping, hard landscaping, and engineering landscaping, their advantages, intermixture, and typical examples in the cityscape. The preference for green landscaping over other strategies and its efficacy in improving urban livability and ensuring environmental sustainability is explored. The green city concept and the green city index in cities around the world are critically examined as parameters for this study.

#### 7.1 An understanding of the landscape, landscaping and landscape planning

As depicted in Figure 7.1, the landscape is made up of the things that are seen in a locality, such as the physical components of landforms including plains, hills, valleys, slopes, mountains, as well as water bodies comprising streams, rivers, ponds, lakes, glaciers, deserts, seas, and oceans.



(Source: Fieldhouse, K & Harvey, S (eds.) 1992, Landscape Design: An International Survey, Laurence King Publishing, London, p. 190).

Figure 7. 1: The Centennial Park and Reservoir, Howard County, in the State of Maryland, U.S.A., a highly diversified landscape of local vegetation communities, wildlife habitats and topography.

Other features of the landscape are the biotic elements covering the land such as local vegetation, plantation, green areas, and other short-lived natural phenomena including weather conditions, lighting and thunder claps, as well as anthropogenic entities consisting of diverse land use development and buildings in the built environment as shown in Figure 7.2 (CTI Reviewers 2016).

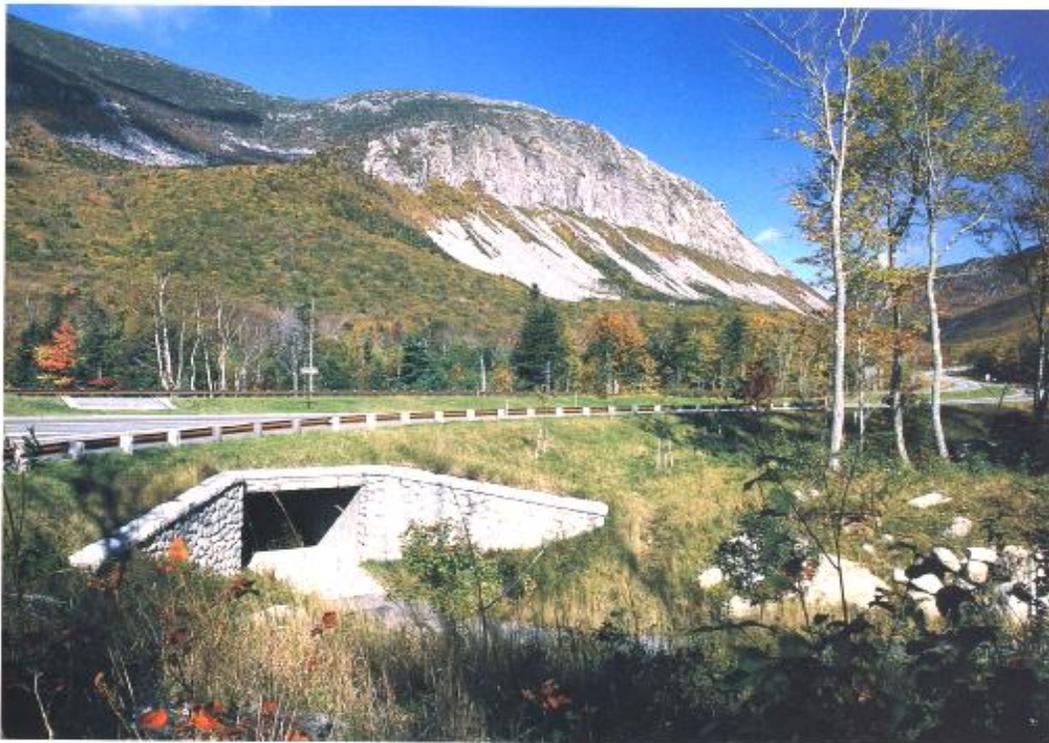


Source: Fazio, M, Moffett, M & Wodehouse, L, 2014, A world history of Architecture, 3<sup>rd</sup>Edn, The McGraw-Hill Company)

7. 2: Court Gardener's House, Chartotenhof, a picturesque building featuring a tower, the low-sloping, gabled masses, and many arched openings and pergolas area in an exotic landscape.

Having developed over thousands of years, landscapes integrate the physical evolution and the cultural footprint of human existence to reveal the local as well as national identities through the combination of dynamic characters of its people and places. The uniqueness of the character and quality of the landscape of a region is indispensable to the perception of its image and sense of place, which distinguishes it from other regions, and provides the dynamic environment for human existence (CTI Reviewers 2016).

The Earth's surface is covered with a broad variety of landscapes. Such include the glacial terrains of Polar Regions, rocky and hilly topographies, extensive arid desert regions, lakes, island and coastal landscapes, and vast oceans and seas. Landscapes also consist of mountainous slopes, thickly wooded or forest landscapes such as tropical rainforests, and arable lands of temperate regions as shown in Figure 7.3 below. Other specific categories for the evaluation of the landscape include cultural landscape, landscape ecology, landscape assessment, landscape planning, and landscape design (Adedokun, 2016).



(Source: Fieldhouse, K & Harvey, S (eds.) 1992, Landscape Design: An International Survey, Laurence King Publishing, London, p. 199).

Figure 7. 3: The mountainous Layfayette Campground landscape, a tourist destination for rock climbing.

The terms *landskift*, *landscape* or *landscaef* were assumed to have come into use in Britain after the 5<sup>th</sup> century (Calder, 1981). These words were utilised to describe interrelated natural or man-made terrestrial or aquatic spaces for human activities such as plots of land, meadows, range of hills, river valleys or regions with or without distinct fence or walls. They are synonyms to the German *landschaft*, which connotes a small administrative unit or region. By late 16<sup>th</sup> century,

*landschap* emerged as the modern derivation of the term, meaning scenery, as conveyed by Dutch paintings of natural outdoor scenery. Hence, landscape was initially documented in 1598 as a borrowed term from Dutch artists towards the end of the 16<sup>th</sup> century, while the painters verged on their mastery of the art of landscape painting. *Landschap*, which originated from the Dutch and implied ‘region, tract of land’, later assumed artistic connotation recorded in English as ‘a picture depicting scenery on land’. This was reflected in William Harrison’s *Description of Britain* in 1577, which ushered in the innovative understanding of landscape as an aesthetic topographical subject matter (Jackson, 1986). Prior to 1725, there was no evidence that the English derivation of the word was used to describe physical landscapes; rather, it was initially documented as *landslip*, which was deemed to be a corruption of the word, and was eventually substituted for landscape (Oxford English Dictionary).

The decades between 1920 and 1939 witnessed concerted effort that paved way for the establishment of the landscape, not only as vital aspect, but an exclusive reserve of geography (Mikesell, 1968). This assertion was hinged on the view of Sauer (1925, p. 25) that geography was saddled with the task of establishing ‘a critical system which embraces the phenomenology of landscape’. Landscapes were generalised as areas consisting of diverse interrelationship of forms in the physical and natural settings, while the study of landscape entailed tracing the transformation of natural landscapes into cultural landscapes as manifested in ‘the reality of the union of physical and cultural elements of the landscape’ (Sauer, 1925, p. 29). The turn of events in the 1940s, and the challenges of post-war reconstruction had shifted the focus of geographers from their major concern with the prevailing circumstances. More than ever before, the concept of a natural landscape was exposed to criticism with the increasing awareness on the effects of human activities on the environment. New generation of geographers dealt with the subjective attributes of a place within humanistic geography, crossing the bridge between the objective and subjective assessment of an area (Tuan, 1976). There are two perspectives from which the widely accepted dictionary definition of the landscape can be viewed: the first is the particular angle, and the other the general sense. The particular meaning is applicable to a specific portion of the Earth’s surface, while the general perception is relative to the observer (Infogalactic, 2016).

In recent times, psychologists have developed keen interest in environmental perceptions to the extent that the landscape has become the medium of making inquiries into human perception and

human information processing issues. Hence, rather than making reference to physical entities, Daniels and Cosgrove (1988) utilised the angle of outward expression of human perception to describe landscape as a cultural image and graphical representation that structures or symbolizes the environment. Elements of the relativity of views may not be ruled out of such perceptive definitions. Going physical and psychological, Meinig (1976) opined that every landscape is made up of what lies before our eyes, as well as what lies within our heads. In later years the term 'environment' turned out to be more acceptable than 'landscape' in the description of the visible surroundings. Bourassa (1991) emphasized as an advantage that the term 'environment' is readily applicable to the urban setting in similar context in which the phrase 'urban landscape' is used. The term 'environment' is broad based and wider in scope than 'landscape' as it encompasses the entire physical, biological, cultural and aesthetic attributes of any part of the earth's surface.

The terms 'landscape aesthetics' and 'aesthetics' are interchangeably used in the literature. As a derivative of the Greek word *aisthesis* meaning 'sense perception', aesthetics is more etymologically contentious than landscape. The major source of controversy originated from Alexander Baumgarten (1714-62), a minor German philosopher, who erroneously used *Aesthetica* as the title of his book in sociology wherein he evaluated the beautiful or the theory of taste. The influence of this inaccurate publication confined the usage of the term to the area of taste, rather than the wide-ranging field of sense perception. This anomaly was denounced in 1781 by Immanuel Kant, who reverted to the usage of the term to its conventional meaning as the philosophy of sensuous perception (Onions, ed. 1966).

Despite the foregoing, the degraded term 'aesthetics' waxed stronger after its introduction to England since 1830. The Oxford English Dictionary attested to its general usage all over Europe within one hundred years of its Baumgartenian misinterpretation (Lothian, 2014), even as dictionary definitions of aesthetic further enabled the continuation of Baumgarten's blunder. Shorter Oxford Dictionary (1973) defines it as things discernible to the senses rather than things thinkable or immaterial, while it is portrayed as relating to, or dealing with aesthetics or the beautiful (Websters Dictionary, 1973). Aesthetics is regarded as that dealing with the nature of the beautiful, and with judgments concerning beauty (Websters New Collegiate Dictionary,

1973), or as a branch of philosophy, that which deduces from nature and taste the rules and principles of art, the theory of the fine arts; the science of the beautiful, thereby presenting aesthetic as pertaining to the sense of the beautiful or the science of aesthetics (Macquarie Dictionary, 1991). A recent entry in the Cambridge Advanced Learner's Dictionary (2008, p. 23) defines aesthetic as 'relating to the enjoyment or study of beauty, or describing an object or a work of art that shows great beauty'. Lothian (2014) agrees that the desire for the appreciation of beauty is the thrust of various studies that focused on landscapes within the wide-ranging context of aesthetics.

Landscape planning has been described as the art or science of arranging land together with the spaces and objects upon it, for safe, efficient and pleasant human use. It can be described as man's manipulation of the outdoor scene to produce a different kind of landscape to suit his own uses, covering all major activities ranging from managing natural forests for timber, to clearing trees to grow crops, building urban and industrial areas and laying out gardens around houses. These either derive directly from the natural scene and its resources or depend on man's management of it. Thus, to evaluate any landscape, it is necessary to understand both its present functions and its origins in terms of man's activity (Ayorinde, 2004).

Landscape architecture entails the detailed planning of outdoor and public spaces to achieve environmental, social, behavioral, and/or aesthetic outcome (Jellicoe & Jellicoe, 1995). Özyavuz (ed. 2013) points out that the realization of this goal necessitates methodical analysis of prevailing physical, economic, cultural and environmental attributes and processes, leading to outcomes that suggest appropriate intervention strategies and designs for achieving the desirable results. The occupation of landscape architects cover all aspects of the natural and built environment; working to integrate a wide range of forms and structures with hard landscaping and planting materials in outdoor spaces to achieve ecological balance in urban, peri-urban and rural communities of various sizes. At the initial stage of a project, the landscape architect uses his technical knowhow to make vital input in the conceptualization, preparation of the master plan, annotated designs, technical details, and implementation strategies, taking cognizance of equitable space usage, choice and sources of materials. It is within the purview of the landscape architect to carry out periodical review of the plan, approve the appointment of contractors and

supervise the stage construction of the project. By virtue of training and expertise, landscape architects conduct environmental impact assessment of project plans; carry out post-implementation environmental audit of projects, and give expert opinions at inquiries on development matters, while they provide technical assistance to secure grants for project finance. The authentication of plans for communal projects by certified landscape architects is prerequisite to the approval and development of such facilities in many administrative units, particularly in the USA and Canada (Ewald, 2017).

Landscape architects have a wide range of professional calling and sphere of activity. These include, but are not limited to projects, designs, proposals and technical reports such as:

- \*The planning, form, scale and siting of new developments
- \*Civil design and public infrastructure
- \*Storm water management including rain gardens, green roofs and treatment of wetlands
- \*Campus and site design for institutions
- \*Parks, botanical gardens, arboretums, greenways, and nature preserves
- \*Recreation facilities like golf [courses], theme parks and sports facilities
- \*Housing areas, industrial parks and commercial developments
- \*Highways, transportation structures, bridges, and transit corridors
- \*Urban design, town and city squares, waterfronts, pedestrian schemes, and parking lots
- \*Large to small urban regeneration schemes
- \*Forests, tourist [destinations] or historical landscapes, and historic garden appraisal and conservation studies
- \*Reservoirs, dams, power stations, reclamation of extractive industry applications or major industrial projects
- \*Environmental assessment and landscape assessment, planning advice and land management proposals
- \*Coastal and offshore developments
- \*Ecological design [sic] any aspect of design that minimizes environmentally destructive impacts by integrating itself with natural processes. (CosmoLearning, 2017, p. 1)

Landscape planners, urban designers, landscape scientists, landscape managers and green roof designers are some of the allied professionals to the field of Landscape Architecture. Landscape planners undertake the layout plan of the landscape of a particular place, accentuating the intricate ecological and recreational features in the overall land use. They draw up policy frameworks and implementation strategies for new developments, landscape evaluations and assessments and rural area management, which are documented in form of master plans. The knowledge of landscape archaeology or law provides additional performance advantage for the landscape planning practitioner. Urban designers specialize in the organisation and integration of physical forms of towns and cities in conformity with circulation network and public open spaces

to promote functionality and aesthetics, while counseling on issues related to durable landscape utilization and wholesome treatment falls within the purview of landscape managers, who are conversant with the intricacies of the landscape. Landscape scientists are authorities in ‘soil science, hydrology, geomorphology and botany’, which aid their realistic tackle of problems emanating from landscape projects. They also specialize in site analysis, planning or management related ecological evaluation of large territories, and reports on the effects of development or the significance of specific species in a given locality. The creation of quantitative and qualitative roof gardens for ‘storm water management, evapo-transpiration cooling, sustainable architecture, aesthetics, and habitat creation’ is the exclusive reserve of green roof designers (Wikidwelling, 2017).

The concept of landscape planning and landscape architecture is germane to this study which seeks to utilise the green landscaping technique in the reclamation of encroached setbacks and open spaces, and thereby redress the anomalies that threaten sustainable landscape development and the environment in the capital city of Ekiti State.

The natural vegetative aspect of the environment is referred to as the green landscape. These naturally occurring soft landscaping elements, with characteristic cooling effect, include trees, shrubs, hedges, flowers, grasses, ground cover, climbers, prostrates, woodland, forests, vegetation, recreational or organised open spaces, gardens, parks, water bodies, swamps, watersheds and catchment areas. Green landscaping is the utilization or preservation of these soft landscaping elements on the earthscape as typified in Figure 7.4 showing the University College, Dublin campus.

On the other hand, hard landscaping connotes the artificial, anthropogenic or man-made aspects of the visible landscape such as asphalt/paved roads, sidewalks, drainage channels, pedestrian walkways, malls, rail lines, paved parking spaces and lots, fences and walls, hard surfaced spaces around buildings and structures, street furniture, sculpture, and graphics. Hard landscaping elements are generally inorganic in nature, and have the tendency to retain or radiate heat.



(Source: Lehmann, S (ed.) 2015, *Low carbon cities: transforming urban systems*, Routledge, New York, p. 213.)  
Figure 7. 4: A bird's eye view of the University College, Dublin campus showcasing the use of soft landscaping elements on the earthscape.

Engineering landscaping refers to interconnecting man-made infrastructure of various forms and features. Ayorinde (2004) defines it as “the powerful man-made lines of force” such as highways, minor roads, streets, railroads, high voltage power transmission lines, underground sewers, water and gas mains, bridges and drainage channels. Also included in this category is the use of water in the landscape such as fountains, cascades, and artificial waterfalls.

The rural landscape consists more of soft landscaping elements, while as a result of the pressure of urbanisation, the urban landscape tends to be characterized by hard and engineering landscape elements than the rural hinterland. This trend is clearly observable in Ado-Ekiti, whereby natural vegetation is continuously depleted by concrete development. However, the proportional combination of the various types of landscape entities is ideal, while this study aims to reclaim encroach public spaces, break up hard surfaces and employ landscape planning and architecture

skills to incorporate more of soft landscaping and green infrastructure to attain the goals of the green city and sustainable urban landscape in Ado-Ekiti.

## **7.2 Advantages, intermixture, and typical examples of landscaping in the cityscape**

The advantages of landscapes and landscaping in regulating and harnessing planning and development that creates an attractive and holistic environment in Nigerian towns and cities go beyond rhetoric. The more these advantages are appreciated and embraced, the greater the likelihood of protecting existing landscape elements, providing new ones, and curbing their misuse and abuse for other purposes.

Fadamiro's (2000) comparative analysis of outdoor spaces and their landscape qualities in three neighbourhoods in Lagos, Nigeria, examined the use of landscape elements in the outdoor spaces of the residential building environment and suggested that improved landscape qualities in these areas would directly increase residents' perceived quality of life, thereby supporting previous studies. He suggested that the aesthetic quality of outdoor spaces and their management should be of high priority in site planning in all neighbourhoods, notwithstanding their density. Fadamiro's (2001) study on landscape planning and urban roads in Akure, Nigeria, affirmed the importance of landscape planning in the urban web. He noted that urban landscape planning is far from being achieved in the country's cities as it is seen as an irrelevant detail in physical planning. Using Ilaro, Nigeria as a case study on people's perceptions of the problems associated with the landscaping of urban residential environments, Lasisi and Arowosegbe (2005) uncovered diverse views that underplay the importance of landscaping and exaggerate its perceived harm or difficulties. They found low level of awareness among urban residents of the fundamental principles of landscaping, its role in the creation of a better living environment, and its other numerous advantages. The authors advocated for the conversion of some abandoned open spaces in urban centres to horticulture gardens. In line with this suggestion, the current study seeks to rejuvenate abandoned or encroached open spaces and setbacks in Ado-Ekiti.

Onilude et al. (2010) identify the social, aesthetic, health, environmental and economic value of forests, trees and greenery to rural communities and the natural environment at large. An abundance of forestry or greenery in the urban setting is an indication of an integrated planning

approach, which involves consistent landscaping planning, implementation and maintenance to sustain urban green spaces for the overall benefit of society. In the State of Environment Report, Lagos, the authors posit that urban forests are indispensable in the ecological balance of human settlements as they help to reduce the intensity of storm water runoff, reduce noise pollution, and improve air quality through carbon sequestering. They also serve as a cooling system, thereby saving energy costs. Moreover, urban forestry and green spaces provide wildlife habitats, natural, and recreational areas and are a tourist attraction. Since 2007, Governor Babatunde Raji Fashola's administration in Lagos State has promoted green culture by rekindling the culture of tree planting which Lagos residents had abandoned over the years. Onilude et al. (2010) note that the programme is also intended to sensitize and educate citizens on the advantages of tree planting to mankind, and to strengthen advocacy as a means to address global warming and create a conducive living environment. This research study builds on this assertion to harness the advantages of landscaping by establishing the need for aggressive planting to green Ado-Ekiti.

### **7.3 The preference for green landscaping over others and its efficacy in improving urban liveability and ensuring environmental sustainability**

Lia et al. (2005) examined urban greening based on ecological principles in Beijing, China and identified greenspace as an indispensable component of the intricate urban ecosystems that offers considerable ecosystem advantages, as well as economic, aesthetic, recreational and environmental ones to urban centers. The study sought to develop an all-inclusive programme to green Beijing Province using ecological principles to achieve enduring sustainability. These include an extensive natural and semi-natural forest and an ecological buffer zone for environmental quality protection and the creation of wildlife habitats at the regional level; a web of green wedges, parks and corridors targeted at curtaining future urban expansion, environmental quality improvement, and the provision of wildlife movement paths and habitats at the city level; and a network of riverside greenway, road greenway, parks and vertical greening that provides open spaces adjacent to residential areas for aesthetic and recreational purposes at the neighborhood level. The study recommended that this development approach should be adapted to integrate urban parks, water, infrastructure, forestry, and agriculture, and given legal muscle to create an interconnected web of green spaces towards attaining the ultimate goal of transforming Beijing into an eco-city beyond the Green Olympic City 2008 image.

A case study of Ljubljana, Slovenia, by Hladnik and Pirnat (2011) examined urban forestry as a nexus between naturalness and amenity. They posited that urban forestry offers the linkage between the forest ecosystem, nature preservation and the social needs of urban society in proximity to the natural environment. Urban forestry is relevant to the welfare of urban society when it is able to relate the need for a natural environment to the life support system provided by a forest ecosystem. The study notes a unique feature of Ljubljana where forests comprise over 25% of urban areas within a radius of 1 km walking distance, especially where forest groves are not deeply situated in the inner environment. The concept of urban forests in the Ljubljana Green System is the cornerstone of a green network created by the two largest forest patches of Golovec and Rožnik that are part of the forest wedges extending to the central area. An analysis of the range of forests found that in the past, more than 75% of forest grounds were marked for preservation while in the remaining 25% of the city Green System, forests have been significantly depleted in 50% of today's area. The study recommended that the urban forests should not only consist of a considerable proportion of trees and other species that occur naturally, but that the landscape of forest patches, corridors and network should be sustained in urban areas and the urban-rural axis into the fringes.

Ng et al. (2011) studied the cooling effects of greening in a high density area in Hong Kong. They identified greening as an indispensable planning strategy. Urban greening has been used to provide shade, cool the air, and reduce energy usage in buildings. The authors concurred with previous studies that highlighted the efficacy of greening as a strategy to mitigate the harmful effects of urban heat island syndrome. They reviewed planning activities using urban greening and went on to provide an inventory on the ideal location, quantity, and typology of vegetation for urban planning. The study reveals that for the high building-height-to-street-width (H/W) ratio typical of Hong Kong, roof greening does not have any desirable effect for human thermal comfort near ground level. Apart from suggesting that trees are more versatile than grasses in cooling pedestrian areas, the study also established that about 33% of the urban area needs to be devoted to tree planting to reduce ground level air temperature by around one degree Celsius (1° C). It concludes that avenues have been provided for urban planners to improve urban greening towards achieving a sustainable living environment in high-density cities.

Vegetation and greenery can cool buildings, reducing energy utilization and emissions as the need for mechanical air conditioning is significantly reduced. According to the National Urban Forestry Unit (2005), research in the US found that shelter and shade from tree canopies can save up to 10% of the energy required to heat and cool buildings within their range. Allotments and community gardens not only promote food security, but reduce carbon emissions (Wahab & Falola, 2014), which ensures clean air and healthy living. Urban greening is thus an effective measure to mitigate most urban environmental problems occasioned by expansion (Long & Nair, 1999) that is typical of least developed countries. For greater effect, the quantity in terms of the spatial coverage of the green space is as important as its quality or context (Wahab & Falola, 2014).

The quality of the environment is greatly enhanced and protected when it consists of adequate green furniture in the form of parks, squares, corridors, incidental open spaces, and outdoor spaces around buildings. Green furniture plays a vital role in flood storage due to its high capacity for rainwater infiltration and carbon sequestration as long as it is maintained as green space. This research study intends to leverage on these landscaping techniques and experiences to establish lush green spaces to the level of urban forestry that makes the landscape equitable and sustainable, and the environment clean and liveable in Ado-Ekiti.

#### **7.4 The green city concept and index**

The strategy that protects, restores, and maintains nature and an ecological balance within urban communities is collectively referred to as green city development. It connotes the intermingling of nature with urbanism to create healthy, and enriching living places. Such a living area is governed more by nature than legislation, and is a sustainable human habitat built upon stable ecology, independent society, and inclusive democratic system (Williams, 2000). A city with opulent and superb greenery is the result of holistic planning, and consistent management and maintenance, which guarantees lush green verdure, flourishing fauna and a healthy human environment (Adams and Leedy, 1987; Johnston, 1990; and Godefroid, 2001), which, according to Jim (2004), is a source of national pride. Kaplan (1984) and Ulrich (1986) add that such a city exhibits psychological attachment to the beauty of nature.

The establishment of community parks is the starting point in creating sustainable green spaces, in that they offer a variety of ways to reduce the impact of environmental vagaries on cities. The restoration and preservation of open spaces is another effective green initiative. The use of asphalt roads, concrete sidewalks, paved walkways and concrete-block property boundaries in most urban neighborhoods calls for the introduction of more greenery for atmospheric cooling, enhanced aesthetics and community value, biodiversity propagation, and bringing nature closer to the people at street-level. Apart from being desirable, sustainable urban green space is also profitable as it supports livelihoods by creating opportunities for employment and trade.

Green space has been referred to as a piece of land covered by natural or artificial vegetation. A green space also evolves when areas in a natural or semi-natural ecosystem are converted to urban space through anthropogenic influence. Urban green space performs a number of functions that enhance the quality of urban life. It plays an important role in city sustainability by curtailing soil erosion and flooding, absorbing carbon dioxide, providing oxygen, and modifying the microclimate. It is for these reasons that Oduwaye (2014) asserts that “the design, provision, management and protection of urban green spaces are at the top of sustainability and liveability agenda”.

Aquatic resources such as pools, fountains, streams, rivers, swamps, waterfronts and beaches, that are often neglected, misused or abused, are significant greening initiatives, which have substantial cooling effects on the urban environment. Williams (2000) posits that the protection and restoration of urban aquatic systems is capable of revitalizing neighborhoods and commercial areas. Hestmark (2000) notes, that the green city model is accepted worldwide and therefore transcends spatial and cultural barriers. A green city is synonymous with a clean city, which is a city that has clean and efficient energy derived from renewable sources like solar and wind, complemented by clean and accessible modes of public transport such as biking, hiking and walking. Such a city also has effective waste management, transport and building infrastructure. Furthermore, a green city is richly endowed with a beautiful natural landscape, green spaces, clean, garbage- and litter-free streets, clean and unpolluted air, clean potable water, and effective solid waste and sewage management. According to Olokesusi (2009), green cities have generous landscaped open spaces, parks, nature trails and reserves. Apart from the

ecological services performed by vegetation, nature contributes to a happy and fulfilled life. Morris (2014) categorizes cities that have formal open spaces interconnected with nature as ‘biophilic cities’ such as Birmingham, U. K., San Francisco, U S, and Oslo, Norway.

#### **7.4.1 The Green City Indices**

In his foreword to the summary of the Green City Index research series, Dr. Ronald Busch, CEO Infrastructure and Cities Sector, and Member of the Managing Board of Siemens AG declares that “efficient and intelligent technology” is the panacea for the numerous urban challenges emanating from the negative effects of urban growth such as traffic congestion, informal settlements, urban sprawl, environmental pollution, and resource exploitation. Based on this premise, Siemens established the Infrastructure and Cities Sector to “provide cities and their related institutions with the best possible products, solutions and services.” The Green City Index, a research series covering 120 cities worldwide, was commissioned as a contribution to on-going discussion on development in environmentally sustainable cities. It “helped city stakeholders to better understand their specific challenges, provides them insight into effective the policies and best practices and supports their decision making” (Siemens, 2012).

The Green City Indices were first conducted in Europe in 2009 and were extended to other continents in 2011 through the Economist Intelligence Unit, supported by Siemens, and showcased cities’ environmental performance as well as obligations to minimize their effects on the environment. Environmental impacts of major cities in Europe were considered in the European Green City Index, while the German Green City Index was exclusively devoted to 12 most important cities in that country. The US and Canada Green City Index assessed the level of performance on environmental indicators in 27 cities selected across the United States of America and Canada, just as similar performance in major cities of Latin America were rated in the Latin American Green City Index. In like manner, the Asian Green City Index appraised the situation on environmental issues in major cities of Asia, and the African Green City Index evaluated Africa’s major cities. As a matter of principle, the cities were selected independently into the Indices, while requests from city governments to be included were not entertained. This gave credibility to the mode of selection, and provides basis for comparison on a given Index.

The Green City Index series measures cities on approximately 30 indicators across eight to nine categories depending on the region. The performance yardsticks in the various categories of the Index include CO<sub>2</sub> emissions, energy, land use, buildings, transport, water, waste management, air quality and environmental governance. Nearly 50% of the indicators in each Index are quantitative – usually data from official public sources, for example, CO<sub>2</sub> emissions and water consumption per capita, recycling rates and air pollutant concentrations. The remaining indicators, delving into the evaluation of the city’s policies on the environment in qualitative terms, include the dedication to sourcing more renewable energy, traffic-congestion-reduction policies and air quality codes, among others. Measuring quantitative and qualitative indicators together means that the Indices are based on current environmental performance as well as the city’s intention to become greener. The specific indicators differ slightly from one Index to another, taking into account data availability and the unique challenges in each region (Siemens, 2012).

The European Green City Index is based on a survey that The Economist Intelligence Unit carried out in 2009, which examined 30 cities listed alphabetically as Amsterdam, Netherlands; Athens, Greece; Belgrade, Serbia; Berlin, Germany; Bratislava, Slovakia; Brussels, Belgium; Bucharest, Romania; Budapest, Hungary; Copenhagen, Denmark; Dublin, Ireland; Helsinki, Finland; Istanbul, Turkey; Kiev, Ukraine; Lisbon, Portugal; Ljubljana, Slovenia; London, United Kingdom; Madrid, Spain; Oslo, Norway; Paris, France; Prague, Czech Republic; Riga, Latvia; Rome, Italy; Sofia, Bulgaria; Stockholm, Sweden; Tallinn, Estonia; Vienna, Austria; Vilnius, Lithuania; Warsaw, Poland; Zagreb, Croatia; and Zurich, Switzerland. Copenhagen was ranked as overall best, while Stockholm, Oslo, Vienna, and Amsterdam were placed second, third, fourth and fifth, respectively. Other cities included in this review are Helsinki, London, Madrid, Bratislava, and Sofia (Siemens, 2009).

With a population of a little over 500,000 people, representing about 10% of Denmark’s populace, Copenhagen is a relatively small European city. It is the hub of the country’s business and financial activities, and offers prime locations for international business concerns and distribution centers in Western Europe. Having performed well in all eight categories of the index, and ranked joint first in the environmental governance subcategory, Copenhagen achieved

a record high score of 87.31% to become the highest ranking city in the European Green City Index, a position well deserved due to the fact that the city enjoys steady support from the national and municipal government in advancing sustainable development. Copenhagen's ambitious green land use policies including greening programmes in the form of brown field sites redevelopment complementing ample verdure, with about 80% of residents living within 300 meters of a park or recreation area. With 55% of all waste recycled, while the proportion for household waste is much lower at 24%, Copenhagen ranks seventh in the waste and land use category (Siemens, 2009).

Stockholm is the capital of Sweden. Home to a population of about 800,000, about 10% of the country's total population, the city is one of the world's cleanest, as a result of the services sector dominating its economy; it is almost devoid of heavy industry. Stockholm is ranked second in the European Green City Index, with a score of 86.65 out of 100. The city has striking similarities with other neighbouring Nordic cities such as Copenhagen, Oslo and Helsinki, which all achieved high ranking in the Index with the common attribute of "a long tradition of policies aimed at protecting the environment". Stockholm has for many years protected its green spaces, to the extent that 85% of the population lives less than 300 meters from parks and green areas (Siemens, 2009).

Norway's capital, Oslo is also a relatively small city of less than 550,000 inhabitants constituting about 12% of the total national population, although its 2% population growth per year surpasses that of any of the other Nordic capitals. A centre of wealth, its GDP per head in 2008 was the highest in Europe. Oslo is ranked third overall in the European Green City Index, with a score of 83.98 %. This is partly due to the fact that the manufacturing sector is small, accounting for less than 7% of Oslo's Gross Value Added (GVA), while business services provided 20%, wholesale and retail trade account for 14.5% and the financial sector contributes nearly 11% of GVA, respectively. The city ranks sixth in the waste and land use category, surpassing other high-income cities such as Copenhagen and Stockholm. Its position is boosted by its policies on green land use and waste reduction. The Marka forested hill area to the north and east of Oslo partially enfolds the city and the part of Marka owned by the city has been branded with a local 'Living Forest' standard (Siemens, 2009).

Vienna, Austria's capital provides a significant economic and strategic transport link between western and central Europe. While it was home to about 20% of the country's population in 2005, Vienna contributed 27% of Austria's GDP. This was due to its vibrant economy that is largely dominated by small and medium-sized enterprises, which account for 98% of businesses. The city environment is rated highly clean due to the operational shift from manufacturing to business-related services over the past decade. Vienna ranks fifth for waste and land use, largely due to its protective and invigorating green land use policies. The city places high priority on the reuse of articles. It has established the Vienna Repair Network, which consists of over 50 repair shops spread across the city, to encourage customers to maintain rather than discard faulty items. Incentives include frequent-user cards that offer customers a discount on the fourth item repaired (Siemens, 2009).

Amsterdam is the capital and business and financial hub of the Netherlands. It is the country's largest city with 750,000 inhabitants and offers a wide range of business services. However, little manufacturing takes place in Amsterdam proper, with the bulk of industrial activity operating beyond the city borders, providing for a clean city environment. With a score of 83.03 out of 100, Amsterdam ranks fifth overall in the European Green City Index, and is ranked highest for water, waste and land use. The city is not only a moderate producer of waste but recycles around 43% of its waste, second only to Helsinki in the Index. Generally, The Netherlands is densely populated and maintains a culture of highly protected greenspaces. In land use parlance, Amsterdam is deemed a compact city. Its protected green spaces are encompassed by the Main Green Structure urban plan. This exhibits a 'wedge structure' with green spaces that spread into the interior of the city from the surrounding green belt, while the vast waterways around the city provide a different form of green space (Siemens, 2009).

The Finnish capital, Helsinki, has a population of 570,000, with the Helsinki Metropolitan Area consisting of four municipalities, Helsinki, Vantaa, Espoo and Kauniainen, accommodating a total population of about a million people. The city economy is dominated by the services sector, mainly information technology and the public sector. With an overall score of 79.29%, Helsinki ranks seventh in the European Green City Index, and fourth among the Nordic cities, largely due to its relatively high carbon dioxide (CO<sub>2</sub>) emissions and energy consumption, even though it is a

leader in energy efficiency. Helsinki ranks third in the waste and land use category, chiefly because of its waste-reduction policies culminating in a high level of waste reuse and recycling. In terms of land use, expansion into green areas is minimal as new construction takes place on brown field sites rather than in green areas, boosting the availability of lush greenery in Helsinki (Siemens, 2009).

London is the United Kingdom's capital and its largest city with a population of 7.6 million. It is "a global center for financial and professional services, as well as a major tourist destination". This is expected of a city that accommodates "the headquarters for more than one-half of the UK's largest companies" and is a nodal point for multinational companies with an established stronghold in the European market. With a score of 71.56 out of 100, London is ranked 11th overall in the European Green City Index. It has adopted plans and initiatives to mitigate climate change. For example in February 2009, the city established a 'dating agency' to attract companies interested in utilising different kinds of waste for energy reuse or recycling (Siemens, 2009).

Madrid, the capital of Spain that is home to 7% of the country's population, covers only 0.12% of the nation's land mass. It accounts for around a tenth of Spain's GDP and is dominated by the services, financial, administrative and transport sectors. Having garnered a score of 67.08 out of 100, Madrid ranks 12th overall in the European Green City Index. This ranking, which is facilitated by good performance in carbon dioxide (CO<sub>2</sub>) emissions and water, is remarkable in the sense that Madrid occupies a middle ranking among the larger cities, below Berlin, Paris and London but above Rome, Athens and Istanbul. Innovations are targeted at sustainable development, which is novel to the city. Emissions in the waste sector have been significantly reduced "in the past decade by installing degasification systems and recovering biogas from landfill" while Madrid's green surface areas such as parks, gardens and forested areas constitute a significant 43% of the city's total area (Siemens, 2009).

Paris is the capital of France. The Paris metropolitan area and the greater Paris region popularly known as Ile-de-France together form the most densely populated part of the country, housing nearly 12 million people. As a result, it is ranked as the second largest in size among the cities

considered on the European Green City Index after Istanbul. Due to its location and the availability of a high-speed train network, Paris is an important intersection between Germany, Belgium, Luxembourg and the UK. In the waste and land use category, Paris ranks 12<sup>th</sup> but it is ranked joint first in the green land use subcategory. The central area of the city is strewn with green areas, including more than 400 parks and gardens, which are promoted and consistently improved by a dedicated municipal division (Siemens, 2009).

Bratislava is the capital and largest city of Slovakia, and the country's economic, financial, cultural, educational and political center. It is positioned at an intersection of major transit roads, which results in large volumes of through traffic. Bratislava scored 56.09 % to rank 20th in the European Green City Index. This performance is better than most east European cities and other industrial cities in the region. Much of the city's bus network uses fuel from the Waste and Energy Company that is produced from waste. In Bratislava, the ratio of green space per inhabitant in the city is 110 square meters. Landscape improvement initiatives include the June 2009 experience where nearly 2,000 volunteers drawn from 40 companies partnered with the municipal government to clean parks, restore playgrounds and plant flowers in an annual event (Siemens, 2009).

Sofia, Bulgaria's capital city is the political and economic nerve center inhabited by about 1.2 million people representing about 16.5% of the country's population. In 2007, it contributed approximately 33% of the country's GDP. Overcrowded public transport and traffic congestion are major fallouts of rapid economic growth in the city. The long period of abandonment and underinvestment, typical of post-communist cities, had detrimental impacts on Sofia's environment. It is thus no surprise that Sofia mustered a score of only 36.85 out of 100 to rank 29th in the European Green City Index. The city also features prominently on the lower rung of the income ladder in the index, "a factor that appears to be correlated significantly with environmental performance". Sofia ranks 29<sup>th</sup> for waste and land use and waste disposal is a significant problem. While green spaces abound in the surrounding countryside, available green spaces in the urban fabric have been encroached upon by rapid development. However, relief lies in the rehabilitation and development of Sofia's urban greenspaces initiated and guided by a new regulation approved in 2007 (Siemens, 2009).

The US and Canada Green City Index (Siemens, 2011b) surveyed 27 cities: Atlanta, USA; Boston, USA; Calgary, Canada; Charlotte, USA; Chicago, USA; Cleveland, USA; Dallas, USA; Denver, USA; Detroit, USA; Houston, USA; Los Angeles, USA; Miami, USA; Minneapolis, USA; and Montreal, Canada. Others are New York City, USA; Orlando, USA; Ottawa, Canada; Philadelphia, USA; Phoenix, USA; Pittsburgh, USA, Sacramento, USA; San Francisco, USA; Seattle, USA; St Louis, USA; Toronto, Canada; Vancouver, Canada; and Washington DC, USA.

Given its strong policies across all categories that earn it 83.8% in the overall results, San Francisco ranks first in the US and Canada Index, excelling in waste management by recording the highest municipal recycling rate of 77%. In terms of ground-breaking green initiatives, in partnership with the private sector, the city also leads energy-efficiency awareness programmes, funds green improvements, promotes environmentally-friendly commuting mass transit, and ensures efficient energy consumption with the target of reducing energy use by up to half within 20 years. The Canadian city, Vancouver has the second overall best rating in the US and Canada Index, having scored 81.3%. Vancouver's determination to reduce greenhouse gas emissions paid off, and it has the lowest CO<sub>2</sub> emissions per capita in the Index, which earns it first position in the category of CO<sub>2</sub> and air quality. The city also set a target for all residents to live within a five-minute walk of a park, greenway or other green space and to plant 150,000 new trees by 2020 (Siemens, 2011b).

In terms of greenery in the land use category, it is shown that cities the US and Canada Index exhibit considerably large quantities of green space, often associated with low density of population. The average area coverage of green space in the cities under review in the Index is 12%. There is a combination of very high density development with park and greenspaces in some cities such as New York and San Francisco having 20% and 17% of green spaces respectively in their built up areas. However, in the main, the Index shows that parks and open green areas are more readily available in low-density cities. Generally, the average density for cities evaluated in the North American Index is 8,100 persons per square mile (3,127 persons per square kilometer), equating to 2.5 times less than the average for Asian cities estimated at 21,100 persons per square mile (8,147 persons per square kilometer), and far below the figures for Latin

America (11,700 pers. per mi<sup>2</sup>/4,517 pers. per km<sup>2</sup>) and Europe (10,100 pers. per mi<sup>2</sup>/3,900 pers. per km<sup>2</sup>). Ninety-six percent of all the cities in the Index is implementing one policy or the other, geared towards the quantitative and qualitative improvement and sustenance of green space, while 66% boost city greenery with vibrant tree planting schemes, as exemplified in the quite significant Million Trees NYC, which is on target 'to plant and care for a million trees' within a period of 10 years. However, despite their tendency for high-quality guiding principles on parks and trees, cities in the Index display obvious inertia in stemming the tide of urban sprawl, to the extent that only 41% display excellent performance on strategies to curtail urban sprawl. It is in the light of this that a Canada-US-Mexico government partnership, the Commission for Environmental Cooperation in 2011, singled out urban expansion as a foremost environmental challenge requiring greater awareness and action (Siemens, 2011b).

Out of the twenty-seven cities evaluated in the USA and Canada Green City Index conducted in 2010, San Francisco emerged as the leading city in the field, having scored 83.8 points. Closely following is Vancouver with 81.3 points, while New York is placed third with 79.2 points. Others include Seattle (79.1), Denver (73.5), Boston (72.6), Los Angeles (72.5), Washington DC (71.4), Toronto (68.4), and Minneapolis (67.7) (Siemens, 2011b).

Strategically located on the northern coast of the US state of California, San Francisco is naturally bounded by the Pacific Ocean, the Golden Gate Strait, and San Francisco Bay. At about 49 square miles (127km<sup>2</sup>), the city may be among the smallest in the Index, yet is the second most densely populated, with 820,000 inhabitants in the city proper, and a total of 4.3 million in its metropolitan area. The city is a prime location for leading financial and blue-chip companies, and attracts tourists from far and near. San Francisco recorded the second highest GDP per capita in the Index and was ranked first in waste management.

The city's high population density of 16,600 residents per square mile, second only to New York in the Index, strengthened its land use ranking. Although San Francisco occupies a relatively small area, measures have been adopted to improve green space not only quantitatively, but qualitatively, with 17% of city territory devoted to greenery, much higher than the 12% Index average. However, its land use score was encumbered by policy weaknesses; it seems to be

dragging its feet in promoting brown field regeneration and addressing urban sprawl. In terms of green initiatives, guidelines for the city's pedestrian areas (including sidewalks) in the policy document titled *A Better Streets Plan* were adopted in December 2010. What was initially intended to improve pedestrian safety eventually impacted positively on the ecological potential of streets and proved the efficacy of trees as “the primary organizing element of city streetscapes”. The plan advocated for tree planting as a means of increasing urban forest space in the city (Siemens, 2011b).

With a population of 2.1 million in the Vancouver metropolitan area, this western Canadian coastal city emerges as the third most populous in the country, but the smallest Canadian city in the Index, considering that 580,000 people live within the city limits. Low CO<sub>2</sub> emissions, the least in the Index, contribute to the city's ranking of second overall with 81.3 points, having emerged first in the CO<sub>2</sub> and air categories. Vancouver is Canada's foremost port city economy that is dominated by maritime and mining activities, as well as recent developments in the tourism, film and high-tech industries. However, lateral development is hindered given the fact that the city is made up of islands and peninsulas, similar to San Francisco and New York. As a result, Vancouver experiences the fourth highest population density in the Index, while the territory devoted to green space is on a par with the Index average of 12%. Policies and strategies to encourage tree planting and park creation promise to promote green space. The green initiatives revolve around the target set in 2010:

...for all residents to live within a five-minute walk of a park, greenway, or other green space - while also planting 150,000 new trees - by 2020. Specific strategies include acquiring new parkland, adding trees and planted areas to existing bikeways, and preparing a citywide urban forest management plan. Additionally, in the run-up to the Winter Olympics in 2010, Vancouver sought to regenerate brownfields for new Olympic sites, including the Olympic village... (Siemens, 2011b, p. 133)

New York scored 79.2 points to rank third overall in the Index. With 8.4 million people living in the city proper, New York City conveniently emerged as the largest city, not only in the US, but also in the entire Index. The metropolis is home to 19 million people, ranking among the most heavily populated cities in the world. The city is not only the “economic powerhouse of North America”, but a global financial and business capital, with a mainly service based economy including finance, insurance, media and the arts. The city faces lateral developmental challenges

in view of its relatively high population density and the confinement of four of the city's five boroughs on islands. Despite this constraint, New York topped the ranking "in land use, transport and environmental governance, and finishes third in the CO<sub>2</sub> and air categories".

New York has one of the highest percentages of green space despite its large population. The city develops and maintains green spaces such as Central Park and several other parks and coastlines in all its boroughs. Indeed, 20% of the city area is maintained as green space, which is just about two times the 12% Index average, while ranking second in the whole American-Canadian Index. Green initiatives center on "The Million Trees Program created in 2007 [that] aims to plant 1 million trees by 2017". It is also noteworthy that:

New York is currently ahead of its goal, having planted an average of 19,000 street trees each of the past three years and planting in total over 430,000 trees in parks, open spaces and private backyards ... (Siemens, 2011b, p. 89)

Seattle is located in the northwestern US State of Washington on a strip between Puget Sound and Lake Washington. The city proper has a population of 620,000, and in terms of the Index standards, it is classified as a medium-sized city. However, the extensive metropolitan area is inhabited by 3.4 million people. Its vibrant and productive economy thrives in the busy Port of Seattle, which is an important international trade center between the US and Asia. Seattle is among the leading US cities in terms of environmental policy and has made great strides towards the accomplishment of sixteen (16) environmental priorities over the past decade, which resulted in a ranking of fourth overall in the Index, having scored 79.1 points. However, land use policies suffer some weaknesses and 12% of city territory is devoted to green space, in tandem with the average standard on the Index. Efforts are being intensified "to promote brownfield regeneration and contain urban sprawl". Innovative green initiatives include the following:

In 2008 the city introduced a Parks and Green Spaces Levy, which aims to raise \$146 million over six years through a property tax increase. The levy is to fund various projects to increase green space in Seattle's administrative area. In 2010 the city inaugurated its newest park, the 12-acre Lake Union Park, located on the waterfront near downtown. Seattle's park levy fund provided about \$5 million of the \$30 million project. Furthermore, Seattle set a goal in 2006 of increasing the city's tree canopy to 30% by 2037; in 2010 the tree canopy stood at about 20%. (Siemens, 2011b, p. 121)

Otherwise known as the ‘Mile-High City’ due to its elevation of exactly one mile (1.61km) above sea level in the high plains at the edge of the Rocky Mountains, Denver is the capital of the western US State of Colorado. While the greater metropolis is populated by 2.6 million inhabitants, only 610,000 people live in the main city. Hence Denver is classified as a medium-sized city, and ranked fifth overall with 73.5 points in the US and Canada Green City Index. A combination of city and metro-level data was used in the assessment. This ranking was enhanced by the city’s outstanding performance in the energy and environmental governance categories, where it is placed first. On the other hand, Denver demonstrates weakness in land use, with only 3% of city territory devoted to green space, compared to the Index average of 12%. However, the city is rated highly for its green land use policies and various efforts to address sprawl such as “subsidies to promote brownfield regeneration and the protection of its scarce green space from building development”. Green initiatives include:

...identifying and prioritizing brownfield cleanup projects, evaluating potential uses for properties, and, with site owners, conducting environmental assessments. Additionally, in 2006 Denver launched the “Mile High Million” with the goal of planting one million trees by 2025. The city reached a fifth of that target by March, 2011. (Siemens, 2011b, p. 61)

With a population of 650,000 within the city limits, and some 4.6 million in its extensive metropolitan area, Boston is the Massachusetts State capital, and the largest of all the cities in the New England region. However, in the Index ranking, it is considered below the average size of the North American city as it was assessed on a mixture of data at city and metropolitan levels. This long-established manufacturing port city has a service driven economy, including finance, insurance and research driven by higher education institutions. Boston is placed second for land use in the Index, attesting to its judicious use of scarce land resources. Its well-rounded environmental policies scored 72.6 points, securing sixth position in the Index. Moreover, the city has abundant greenery, with 16% of its territory devoted to green spaces, well above the Index average of 12%. The “Emerald Necklace – a green network that links parks throughout the city”, complemented by proactive policies to protect its greenbelts from urban sprawl through the adoption of smart growth concepts, ensures efficient utilization of relatively limited land resources. Green initiatives in Boston date back to 1976 when the Urban Wilds Initiative was created “to protect city owned urban green space and other natural areas from development and

degradation”. The Boston Youth Clean-up Corps championed the cause, not only by engaging in clean-up and vegetation control activities, but by organizing local and non-profit groups to perform similar activities in their neighbourhood:

[i]n cooperation with the state agency, the Massachusetts Department of Conservation and Recreation, the initiative has helped protect many acres of land from development and covers 36 unique regions within Boston. (Siemens, 2011b, p. 38)

Los Angeles is ranked seventh in the Index with 72.5 points. It is the second largest city in terms of spatial spread as well as the second most populous, with some 3.8 million people living in the city, while the metropolitan area is home to around 12.9 million. Los Angeles is a west coast city on a mountainous plain along the Pacific Ocean, and is one of the world’s busiest ports that support the city’s large industrialized and service economy. The city’s Department of Water and Power (LADWP) drives most of its green initiatives, and much has been achieved in reducing energy consumption, cutting carbon emissions, municipal waste recycling, clean air, and an innovative transport financing scheme. However, the city’s performance in the land use category is below the Index average of 12% with only 8% of its territory devoted to green space. Land use policy is weak as are measures to regenerate brownfields, and control urban sprawl, with activities limited to tree planting. One of the green initiatives adopted as a corrective measure is the Clean Tech Corridor proposed as an integral part of brownfield sites to be regenerated along the Los Angeles River, where financial incentives are offered to selected companies specializing in green technology development to fill the Corridor. The drive to improve the quantity and quality of green spaces in the city includes:

Los Angeles’s Million Trees initiative, begun in 2005, [which] is a public-private partnership working to plant one million trees throughout the city. Nearly 300,000 trees have been planted so far and there is no timeline for when the city hopes to reach this target. (Siemens, 2011b, p. 73)

Washington DC, the capital of the US that is the seat of federal government, scored 71.4 points to rank eighth overall in the Index. Located on the Potomac River, it accommodates 600,000 people within the city limits, while the scattered metropolitan area houses 5.5 million. Numerous international institutions and research centers contribute to the city’s economy. The combination

of a “green action plan and a high level of public participation in environmental policies” led to its top ranking in environmental governance. Washington DC is also rated highly for land use and green land use policies, recording 19% - the fourth highest percentage of green space in the Index, soaring higher above the 12% Index average. The District of Columbia has adopted comprehensive policies to sustain and improve green space. Over the past decade, it has launched several programs, including the Anacostia Waterfront Initiative to clean up and develop the urban waterfront, and the DC schoolyard greening program. The city is also intensifying efforts to stem sprawl, but achieved lower marks for brownfield regeneration and protecting greenbelts from development. Green initiatives received a boost in 2008 when the Plant a Tree in DC program was launched to:

...grant residents a \$50 rebate if they plant a large canopy tree, such as an oak or elm, at any residence in Washington, and pledge to water and care for it for at least two years. The program is administered by Casey Trees, a local non-profit organization, in partnership with the city’s environmental department. Through the program the city has contributed to planting over 2,000 trees over the past few years, while Casey Trees has planted over 6,000 more on its own. Additionally, Washington’s Capital Space partnership unifies green space management across various levels of government. It concentrates on six themes: creating a greenway to link parks, improving public schoolyards, enhancing urban natural areas, improving playing fields, enhancing center-city parks, and transforming small parks into public spaces. (Siemens, 2011b, p. 137)

Toronto is the second Canadian city in the Index. With 2.5 million people living in the city and another 5.1 million in the rapidly expanding metropolitan area, the capital of Ontario Province is Canada’s largest city and rated the fourth largest in the Index. Toronto is placed ninth overall in the Index with 68.4 points, is ranked fourth in waste and is among the cohort of cities with the lowest CO<sub>2</sub> emission levels. In terms of land use, 13% of the city is devoted to green space, just above the Index average of 12%, and it is rated high on redeveloped brownfields and the waterfront, as well as efforts to sustain and improve green space. Toronto abounds in green initiatives such as:

Toronto’s Natural Heritage Protection Plan, based on a conservation study from 2001, contains policies to protect the city’s natural heritage system for the long term. The program includes specific initiatives such as waterfront and parkland naturalization to maintain green space in the city. The goal of the plan is to engage the public in projects that promote stewardship of natural waterfront and parkland ecosystems. The effort is carried out in partnership with community groups and schools. Another initiative, Trees Across Toronto, is a municipal effort that has planted over 300,000 trees in recent years. The trees are planted along streets and arterial roads, in ravines and in neighborhood parks. (Siemens, 2011b, p. 129)

Minneapolis covers an area of 54 square miles (86.9 km<sup>2</sup>) inhabited by 390,000 people and thereby ranks not only the smallest in size, but also the least in population in the Index. However, it has a vast metropolitan area with 3.3 million residents, “a large manufacturing base and a number of the country’s largest corporations are head quartered there”. Minneapolis was one of the US cities that pioneered the incorporation of environmental sustainability into city planning, which was emulated by cities across the country. It is thus not surprising that it excelled in the land use category, emerging second best, with about 20% of its area devoted to green space, surpassing the Index average of 12%. Overall, Minneapolis scored 67.7 points to rank 10th in the Index. It is noted that “the city’s success with green space, as well as population density, is the result of proactive policies”. Green initiatives that date back to 1994 led to the clean-up of hundreds of brownfield sites supported by more than \$1 billion in private investment. Other dimensions of the green initiatives include:

...the city has introduced a more broadly defined Neighborhood Revitalization Program, created in order to improve residential areas, and bring residents and other stakeholders into the neighborhood planning process. By 2005 the city claimed it had spent \$280 million on improving neighborhoods, and in a 2010 report set a further target to improve at least 100 sites by 2014, including beautification and landscaping efforts, neighborhood cleanups, and improvement of area pedestrian and bicycle paths. (Siemens, 2011b, p. 131)

The African Green City Report (Siemens, 2011a) covers Accra, Ghana; Addis Ababa, Ethiopia; Nairobi, Kenya; Pretoria, South Africa; Alexandria and Cairo, Egypt. Other cities are Cape Town, Durban and Johannesburg, South Africa; Casablanca, Morocco; Tunis, Tunisia; Dar es Salaam, Tanzania; Lagos, Nigeria; Luanda, Angola; and Maputo, Mozambique. The evaluation is on 25 distinct indicators derived from multiple data points for each of the cities. Furthermore, eight categories provide the yardsticks for the assessment of each city within the framework of a performance band, thereby generating its comparative results for all the cities. The process is deemed highly reliable as it is ‘transparent, consistent, replicable, and reveals sources of best practice’. Out of the 25 indicators in the Index, thirteen of them are focused on qualitative appraisal of each city in terms of policies, regulations and aspirations directed at green city initiatives. Such include the determination to minimize the impact of energy consumption on the environment, green space and conservation area development, congestion reduction, and waste

recycling. Limitations of data in the African Index arise from the fact the assessments and rankings are based essentially on qualitative review of policies on city's potential future environmental performance rather than earlier regional performance indicators.

In the final analysis, there is no single city emerging as leader in the African Green City Index. Fifteen cities were considered in the Index, but only six scored above average. The performance of South African and North African cities turned out better than those in the Eastern, Central and West African sub-regions. South African cities - Cape Town, Durban and Johannesburg - reputed for good governance constitute three of the six above average cities, having creditable performance on policies relating to the environment. For instance, they ranked higher than the average level on measurable indicators in areas of energy utilization, waste production, water conservation, as well as their potentialities curtail urban sprawl and preserve green space through effective policy formulation. The South African cities differ from many of their North African and sub-Saharan African counterparts in that while urban management policies are administered by city departments usually controlled by the city council in the former, such policies are controlled centrally by the national or provincial government in the latter (Siemens, 2011a).

North African cities perform very well and tend to do better in providing access to urban basic services as water and power supply for residents. However, due to weakness in policy matters, their overall performance does not match that of South African cities. North African cities are average in the environmental governance category, where all of the South African cities are rated higher above average. However, the strength of Casablanca and Tunis, which placed them above average in overall performance on the Index, lie in nearly 100% very strong rating on access to electricity, potable water and sanitation. This situation is also applicable to Cairo and Alexandria, even though they are rated average in overall performance on the Index (Siemens, 2011a).

The low rating of nearly all the sub-Saharan African cities in the Index is a reflection of different problems confronting them. Excluding South Africa, none of these cities, apart from Accra, performed beyond average, while Dar es Salaam and Maputo descended far below average in overall assessment. Their prevailing socio-economic and environmental challenges varied considerably from those of neighbouring cities the northern and southern parts of Africa. A

greater number of people in Maputo and Dar es Salaam, projected to 70% and 68% respectively, are informal settlement dwellers, contrary to 38% Index average. Majority of the populace is linked to one type of sanitation or the other in Dar es Salaam, but only a few 7% of households are linked to the sewer system, while about 10% of sewage is treated prior to disposal. The situation is similar in Maputo where majority of the residents are not provided with basic amenities such as water supply, waste management and sanitation (Siemens, 2011a).

While no data was available on green space per capita in Accra, the capital city of Ghana, it is notable for pleasurable green areas on its fringes. These green spaces serve the purpose of city gardening, which contribute 80% supply of fresh vegetables. The city spread over a large area, covering about 200 square kilometers along the coast of the Atlantic Ocean. In view of this modest size, Accra is ranked as the smallest administrative area out of the 15 cities evaluated in the Index. Within the city proper, Accra is inhabited by about 2.3 million people, but adding up to about 4 million with the inclusion of the suburbs, thereby making the city the second most dense in the Index after Cairo (Siemens, 2011a).

Addis Ababa's green spaces estimated at 37 square meters per person, against the Index average of 74 square meters, are grossly inadequate. In terms of land use policy, mostly aimed at controlling urban sprawl, the city shows creditable performance, but a lot has to be done in the protection of green spaces. The preference for constructing hotels and apartment blocks pose serious challenges to the city's plans to build new parks, thereby leading to an acute per capital shortage of public green spaces. The protection of the eucalyptus forests, flourishing on the Entoto Mountains that surround the city, is purposely for preservation as a watershed than for recreation purposes. Green initiatives in the city should embrace efforts to actualize plans to afforest adjoining mountains, revitalize existing parks, while creating new ones. The actualization of the 5 km linear pedestrian park, proposed to meander through the city center, will constitute a major landmark that enhances green spaces in the city. The master plan proposals to reforest the courses of rivers and streams with native trees, and boost urban agriculture with compost manure from domestic organic wastes, are guaranteed to revamp greenery in the city (Siemens, 2011a).

In spite of being the second most populous city in Egypt, Alexandria has a minute quantity of green spaces estimated at less than one square meter per person as opposed to 74 square meters in the Index. A large proportion of green spaces found along the beachfront are located in privately owned properties to the exclusion of the public, although there are ongoing efforts to safeguard some green spaces and preserve environmentally sensitive areas in the city. It is notable that the percentage of people living in informal settlements is seven per cent lower than the Index average of 38%, even as machinery is set in motion to make urban services such as street lighting and pedestrian walkways available in the informal settlements. Cairo, the most populous city in Egypt, share similar attribute with Alexandria in terms of scanty greenspaces of less than one square meter per person, which is about 99% short of the Index average of 74 square meters. Green space received a boost in 2005 with the formal opening of the 30-hectare Al-Azhar Park, developed on the age-old Al-Darrasa dump site at the outskirts of the old city. The park was an instant success, and offers a 360-degree extraordinarily wide view of the historic city of Cairo (Siemens, 2011a).

Cape Town is adjudged to have the second lowest population density in the Index, given the estimated 1,500 people per square kilometer in the city, which is more than three times less than the overall average of 4,600 people per square kilometer. With the projected 289 square meters of green space per person, translating to about 391% of the Index average of 74 square meters, Cape Town emerged as having the greenest space in the African Index. The luxurious green areas exhibit great biodiversity as they consist of numerous nature reserves, which serve as habitats to some of the world's rarest plant species. Deriving from the strong policy framework instituted to care for these green areas, the city set up an environmental resource management department to supervise the green spaces including environmentally sensitive areas. The city is about to embrace the tenets of non-motorized transport in the spirit of new urbanism and new pedestrianism, and thereby establish more inclusive and recreation oriented open spaces (Siemens, 2011a).

The African Green City Report (Siemens, 2011a) notes that land use policies in Casablanca are very strong especially on the initiatives underway for green space development and protection in the city. However, the availability of green areas is fair going by the estimated 55 square meters

of green space per person in the metropolis, falling short of the Index average of 74 square meters. In relative terms, there is a quantitative deficiency of green space in the city generally, except the Arab League Park established in the CBD since 1918. The park, which is adorned with exotic planting, notably palm trees, is furnished with recreational facilities such as café terraces for snacks, food and drinks. Efforts made to create a new park of similar magnitude in the city have yet to come to fruition. Recently, pilot programmes have been run to test the efficacy of city gardening in the metropolis, which has the potentialities of injecting greenery into the urban web, and providing alternate source of food supply for the city.

Another initiative aimed at increasing the quantity and quality of green areas is the new football stadium under construction in Casablanca. The stadium, being developed to a seating capacity of 80,000, is a prestigious project that inculcates innovative elements of urban planning such as plans to create additional lush green spaces in the city. It is noteworthy that an estimated 15% of the population in Casablanca lives in informal settlements, which is significantly lower than the Index average of 38%. In effect, the city emerged in the Index as having the smallest proportion of people residing in informal settlements, wherein the condition of living have been improved, including the building of new parks to infuse greenery (Siemens,2011a).

Dar es Salaam has a moderately low population density of about 2,200 people per square kilometer versus the overall average of 4,600 people per square kilometer, yet its amount of green space estimated at 64 square meters per person is less than the Index average of 74 square meters. Hardly does the city have policies directed at the protection of green space or ecologically vulnerable areas, nor the control of urban sprawl. Dar es Salaam is saddled with a huge problem of waste management and environmental sanitation, to the extent that the majority of inhabitants resort to open burning of wastes due to the lack of consistent formal waste collection. Over 50% of the populace is provided with one form of sanitation or another, but a lean 7% of households are linked to the sewer system, while about 90% of sewage is discharged without treatment. An international NGO known as the Aga Khan Foundation tried to experiment with traditional Swahili building methods to improve living standards in the city. This took the form of exploring the advantages of using local mud and thatch as alternatives to

imported steel and glass in an attempt at utilizing shade and breezes to cool buildings (Siemens, 2011a).

Durban is located along the shoreline of the Indian Ocean. With an estimated population of 3.5 million people, it is the third most populous city in South Africa. It has the largest port on the East Coast of South Africa as well as an extensive industrial base that sustains a vibrant manufacturing sector of the economy. Apart from the densely populated CBD, the outlying city, which covers an estimated 2,300 square kilometers, is ranked as one of the least dense in the Index. As part of the preparatory work to host the 2010 World Cup, the Greening Durban 2010 campaign was launched during which 62,500 trees were planted (see Figure 7.5), including the reforestation project at the Buffelsdraai landfill site. The trees and greenery have hidden the view of the rubbish from the sight of the low-income residents living nearby and the project has encouraged new wildlife to flourish and reduce the odour from the landfill.



Source: Researcher's Photo File, 2012

Figure 7. 5: View along Rick Turner Road: Durban is richly endowed with panoramic greenspaces.

As a result, Durban has abundant lush green spaces estimated at 187 square meters per person, which is about 253% of the 74 square meters Index average, thereby occupying the third position

and joining the league of other South African cities of Cape Town and Johannesburg on the upper rung of the greenest city ladder in the Index.

Moreover, the Durban Metropolitan Open Space System (D'MOSS) project was set up to develop and manage green spaces in the municipality. Therefore, the major role of D'MOSS centers on identifying and classifying vulnerable areas, including those being threatened by amorphous development and agricultural activities, and slating them for protection and conservation in order to propagate biodiversity and improve people's awareness in the city. Also in the front burner is the drive to prevent the incursion of alien plant species, and the attendant soil and water erosion that may arise. Other green initiatives pursued to improve the city's ecosystem include the development of interconnected open spaces and parks encompassing about 74,000 hectares of land and water that are rich in biodiversity (Siemens, 2011a).

Johannesburg is often referred to as the 'New York of Africa' (Lourdes, ed. 1982, p. 21). Radiating from the densely populated city center, this foremost South African city extends in every direction into dispersed clusters of residential neighbourhoods, industrial layouts and office developments. Hence, its population density, estimated at 2,400 people per square kilometer, is below the Index average of 4,600. With over 10 million trees flourishing in various activity areas, parks and along avenues, Johannesburg is endowed with 231 square meters of green space per person, more than thrice the average of 74 square meters, making it the city with the second highest amount of green space in the Index. However, a major challenge confronting attempts to protect ecologically sensitive areas is the ever increasing space demand for residential use. A parks department is established to oversee the renovation and maintenance of green spaces and support participation in environment-friendly activities including tree planting, bird watching, litter collection and river cleaning. Other initiatives that improve green space to bring greener environment nearer to city dwellers include the conversion of waste land into parks within the metropolis as well as some neighbouring townships. The operation of robust environmental policies, including a broad based bus network that guarantees clean energy usage and congestion reduction, have boosted the city's environmental performance to a top position in the Index (Siemens, 2011a).

Lagos occupies a unique location along the Atlantic Ocean shoreline on Nigeria's southwest coast, and encompasses Lagos Island, the central city, from which development spread to the Mainland and outlying rapidly sprawling townships. The estimated population of the megacity is 10.6 million people, placing it atop the Index as the most heavily populated city. Therefore, the mounting pressure for residential space has given rise to uncontrolled development as established by the World Bank estimates that only 20% to 40% of development in Lagos is backed by government approval. Further analysis reveals that about 66% of the population in Lagos resides in informal settlements, almost double the Index average of 38%.

The ever increasing space demand for land use activities, occasioned by rapid population growth, has continuously depleted green spaces in Lagos metropolis. Consequent upon this, there are scanty green areas, estimated at 34 square meters per person, which is less than half of the 74 square meters Index average. The amorphously expanding city is deemed to have the weakest policies to forestall urban sprawl in the Index, and little or no efforts are made to prevent development on environmentally sensitive areas such as wetlands. Hence, the rating of the gigantic urban agglomeration is below average in terms land use. This trend portends a serious problem for the megacity in view of steadily increasing demands of the dynamic population, which is growing so fast that the UN projects a 33% increase by the year 2020 (Siemens, 2011a).

In response to these environmental challenges, the state government launched initiatives to plant trees and improve green spaces. In 2007, the Lagos State Government commenced a decisive tree planting exercise, and vowed to plant one million trees in four years, with the aim of increasing the quantity and quality of green space and thereby enhance air quality in the megacity. In 2008, the government collaborated with the Clinton Climate Initiative, and pursued with vigour, the greening and beautification of foremost open spaces and highways as shown in Figure 7.6.



Source: Researcher's Photo File, 2014.

Figure 7. 6: Ikorodu Road, Lagos showcasing transformative green spaces and the green BRT lanes as dividends of democracy.

The private sector was also sensitized to support the government in the city-wide campaign to green public spaces. In the first two years of the program, more than 500,000 trees were planted. A Parks and Garden Development Agency was founded and funded to oversee this program and rekindle a culture of tree planting in the mega-city (Siemens, 2011a).

Angola is one of the countries in the south-central region of Africa, having its capital city in Luanda. Situated on the west coast of the country, the city is well positioned in front of the Atlantic Ocean, thereby serving as the most important seaport in Angola. Having gained independence from Portugal in 1975, the country passed through years of civil war and considerable socio-economic disruptions. This era of conflicts exerted notable impacts on the capital city, particularly in terms of its population, which rose sharply from its built capacity of about 500,000 people to the current estimates of 5.8 million residents, with attendant overstretching of limited resources. As a result, the city is evaluated well below average in land use, transport, water and environmental governance categories, which culminated to its poor performance and relegation below average in the overall Index.

Luanda managed to attain average ratings in the energy and CO<sub>2</sub>, waste, as well as sanitation categories due to low level of CO<sub>2</sub> emissions from electricity, minimal waste generation and improved access to sanitation. However, it is estimated that 69% of the city's population inhabit informal settlements known as *musseques*, which radiate in all directions within the radius of 20 kilometer from the central area of the city, without any firm policy for their redemption. Generally, Luanda and its environs are grossly devoid of green areas, and placed at the lowest rung of the ladder given its estimated 0.09 square meters of green space per person, which is infinitesimally low at 0.12% of the Index average of 74 square meters. Nevertheless, some initiatives are in progress to regenerate some green spaces in the city (Siemens, 2011a).

Maputo doubles as the capital and the largest city of Mozambique. Situated on the Indian Ocean, the coastal city has a population of 1.2 million people, and thereby placed second among the least populated cities in the African Index. Going by the World Bank estimates, 70% of the populace, almost twice the Index average of 38%, is resident in informal settlements, due to low incomes and the effects of rapid urbanization. The city displays creditable performance in its evaluation for green spaces with an estimated 115 square meters per person, translating to 155% of the Index average of 74 square meters. This favorable result is derived from the availability of a sizable number of parks and gardens in the downtown, coupled with some scenic coastal ecological zones (Siemens, 2011a).

Initiatives are ongoing to curtail urban sprawl on one hand, and 'regularise' ownerships in informal settlements on the other hand. Plans are underway to step up the protection of existing green spaces while establishing new ones in the city. Such include demilitarizing a 600-hectare green area located in the northern part of the city, which is presently occupied as storage space for military equipment, to pave way for its conversion into an extensive public park. An innovative awareness programme was also initiated in 2011, when the Department of Environment in Maputo Municipal Council made the first move to sensitize students to the significance of environmental protection. The Department delegated teams who visited nearly all schools and highlighted the significance of planting trees and keeping the beaches clean; and in addition, simultaneously practicalised a tree-planting exercise in each of the schools to the extent

that by mid-2011, about 2,800 trees had been planted through the campaign programme alone (Siemens, 2011a).

Nairobi is the capital city of Kenya, populated by 3.1 million people. The municipal and national governments are currently beleaguered to reposition the city into a more conducive territory to accommodate an increased population, which is projected to hit the 7 million mark by the year 2020. Although the city is ranked below average overall in the Index, it is rated at average level in the land use, waste, water and sanitation categories. It is relatively equipped with strong policies aimed at protecting green spaces and environmentally sensitive areas, as well as surface water quality. However, at 37 square meters, the amount of green space per capita is below the Index average of 74 square meters. Working in partnership with some private companies, the Kenya Wildlife service is supervising the Green Line Project, which was initiated to reforest the Nairobi National Park perimeter, stretching for 30 kilometers along the southern part of the city. Having launched the scheme with the initial planting of thousands of trees in 2010, the organizers steadily generated funds from the private sector to finance further tree planting exercises and security patrol in the area. The program is intended to establish a greenbelt as a clear border line between the park and adjoining new developments, and thereby forestall all forms of encroachment on the park (Siemens, 2011a).

There are a number of ambitious projects aimed at promoting the greens in Nairobi. One of such is named Tatu City. The source of funding is from Russia, and it is hinged on the concept of efficient urban development. The so-called “prototype of the African city of the future” is designed to protect wetlands, forest areas and coffee plantations while providing shelter for 62,000 people. Administrators of Nairobi City Council point out that ‘it will be predominantly self-sufficient of a wider initiative led by Nobel Prize winner Wangari Mathai to plant new trees throughout Nairobi to improve water catchment and biodiversity’ (Siemens, 2011a, p. 81). Moreover, as the international head offices of the United Nations Environment Programme and the United Nations Environment Programme, Nairobi belongs to the league of UN capitals together with New York, Geneva and Vienna (Siemens, 2011a). Ashton (2011), Ratemo (2011), and UNEP-EMG (2011) all agree that the UN building located at Gigiri was rebranded as a solar powered complex, first of its kind, in 2011 is a pride to the UN, and a plus to the attainment of

green environment in Nairobi. With its roof lined by 6,000 m<sup>2</sup> of solar panels for clean energy consumption, serving energy neutral offices for 1,200 employees, among other innovative features, the naturally lit building situated on lush green areas with over 600 species of local trees, is set to meet the challenges of sustainability to achieve a greener future. The UN estimates that the revenue saved through minimal energy bills should pay for the investment on the building within a period of seven to ten years.

Pretoria is the judicial capital of South Africa. The city center is moderately populated in view of the fact that majority of employees in this zone are domiciled in neighbouring Johannesburg and travel to work daily. In effect, the city is ranked as the least densely populated in the Index, as it has merely 1,100 people per square kilometer of its space, which is less than a quarter of the Index average of 4,600. The relatively low density status also correlates with the number of people living in informal settlements in the city, which constitutes an estimated 27% of the populace compared to the Index average of 38%. A wide gap exists in terms of green space in Pretoria in the sense that despite the availability of an appreciable number of nature reserves, bird sanctuaries, and other recreational areas, the city only has an estimated 39 square meters per capita of green space to offer, which falls short of the Index average of 74 square meters. Hence, the need arises to evolve innovative development strategies towards establishing new parks and revamping green spaces; and as well initiate effective policies to control sprawling in the city. Residents are encouraged to grow and nurture indigenous plants in their gardens to conserve water and improve greenery (Siemens, 2011a).

Using population as the yardstick, the Tunisian capital city, Tunis is ranked the smallest in the African Green City Index. The main city is inhabited by just 1 million people, while the larger metropolis houses an estimated 2.4 million residents. Hence, Tunis displays a fairly good overall performance despite its relatively high population density estimated at 4,700 people per square kilometer, which is marginally above the Index average of 4, 600. In terms of the spatial extent of administrative area, the city is placed as the second smallest in the Index with an estimated 200 square kilometers in size, and thereby managed to beat Accra out to the bottom of the ladder by a slight margin. When considered in relation to other North African cities in the Index, Tunis has comparatively good administration and it is well-to-do with revenue accruing to it as

proceeds from vibrant tourist destinations that attract visitors from all walks of life. The creditable performance in city management earns the city its average ranking in land use, water and environmental governance categories. However, the prevailing challenges of uncontrolled expansion is depriving the city of adequate green areas whereby only an estimated 15 square meters of green space is available per person, contrary to the Index average of 74 square meters. This necessitated the urgent measures being taken to increase the quantity and quality of green space in the city. Tunis is highly rated for encouraging citizens to use greener forms of transport and embrace environment-friendly practices, resulting in a lot of people walking or cycling to their places of employment in the pedestrian-friendly cityscape (Siemens, 2011a).

In conclusion, the African Green City Report (Siemens, 2011a) shows that no single city leads the Index while cities in South African and North African countries perform better than the rest. The majority of sub-Saharan African cities have peculiar challenges that differ from those up north and down south, but are putting in remarkable efforts to measure up to standard. Cape Town is the greenest city having an estimated 289 square meters of green space per person, about four times or translating to 390.54% of the standard average of 74 square meters, thereby leading other cities in the Index (see Table 7.1). Johannesburg has a relatively low population density, and with over 10 million flourishing trees, offers the second highest estimated 231 square meters of green space per person, equivalent to 312.16% of the Index average as shown in the Table. Durban boasts abundant green space measuring 187 square meters per person, which is more than twice the Index average of 74 square meters, and places third position in the rank of greenest cities, hard on the heels of Cape Town and Johannesburg in the Index.

Maputo, Mozambique's capital and largest city performs creditably well in terms of greenery, offering an estimated per capita green space of 115 square meters, well above the Index average. On the other hand, despite the fairly low population density estimated at about 2,200 people per square kilometer in Dar es Salaam, the amount of green space evaluated at 64 square meters per person, falls short of the required Index standard. While the Index estimated the green space in Casablanca at 55 square meters per person, the general outlook of the city reveals the inadequacy of green areas, except the Arab League Park in the city centre.

Sn	City	Green space m <sup>2</sup> /pers.	Index average	% of index ave.	Rank	Remarks
1.	CapeTown, <i>South Africa</i>	289	74	390.54	1 <sup>st</sup>	Most green space
2.	Johannesburg, <i>South Africa</i>	231	74	312.16	2 <sup>nd</sup>	2 <sup>nd</sup> most green space
3.	Durban, <i>South Africa</i>	187	74	252.70	3 <sup>rd</sup>	3 <sup>rd</sup> most green space
4.	Maputo, <i>Mozambique</i>	115	74	155.41	4 <sup>th</sup>	4 <sup>th</sup> most green space
5.	Dar-es-Salaam, <i>Tanzania</i>	64	74	86.49	5 <sup>th</sup>	Well above average
6.	Casablanca, <i>Morocco</i>	55	74	74.32	6 <sup>th</sup>	Well above average
7.	Pretoria, <i>South Africa</i>	39	74	52.70	7 <sup>th</sup>	Above average
8.	Nairobi, <i>Kenya</i>	37	74	50.00	8 <sup>th</sup>	Average
9.	Addis Ababa, <i>Ethiopia</i>	37	74	50.00	8 <sup>th</sup>	Average
10.	Lagos, <i>Nigeria</i>	34	74	45.95	10 <sup>th</sup>	Below average
11.	Tunis, <i>Tunisia</i>	15	74	20.27	11 <sup>th</sup>	Far below average
12.	Cairo, <i>Egypt</i>	1	74	1.35	12 <sup>th</sup>	Least green space
13.	Alexandria, <i>Egypt</i>	1	74	1.35	12 <sup>th</sup>	Least green space
14.	Luanda, <i>Angola</i>	0.09	74	0.12	14 <sup>th</sup>	Lack of green space
15.	Accra, <i>Ghana</i>	N.A.	74	N.A.	-	Data unavailable

Source: Researcher's Compilation from the African Green City Report (Siemens, 2011a)

Table 7. 1: The African Green City Index depicting the ranking of green space in meters squared per persons.

Pretoria emerges as the least densely populated of all the cities evaluated in the Index, with handful of parks and recreational areas, yet it only has as few as an estimated 39 square meters of green space to offer per person in the South African administrative and judicial capital city. Its development strategy calls for investment in new parks and adoption of robust policies to curtail sprawl (Siemens, 2011a).

Kenya's capital city, Nairobi, measures up to just 50% of the required Index standard on green space at 37 square meters per person. However, the host city of UN regional headquarters displays high potentialities in protecting green spaces and environmentally sensitive areas, given its relatively strong policy in this regard. Addis Ababa in Ethiopia also has 37 square meters of green space per person, but green initiatives are underway to pursue reforestation and urban agriculture toward revamping greenery in the city. Lagos is not only the largest city in Nigeria, but also the most populous city in the African Green City Index, accommodating an estimated

10.6 million people in its sprawling megacity space (Siemens, 2011a). Presently, Lagos has a population estimated at 21 million in 2016, which confirms it as the largest city in Africa (Campbell, 2012; World Population Review, 2016). The ever increasing demand for land occasioned by the city's astronomical population growth, is taking tolls on the green areas, even as there are no coherent policies in place to control sprawling in the urban agglomeration. In effect, the megacity offers relatively little green space estimated at 34 square meters per person that does not measure up to the Index average of 74 square meters.

Emerging as the least populated city in the African Green City Index, housing just 1 million residents, Tunis yet lacks adequate green space estimated at 15 square meters per person, well below the 74 square meters Index average. The Egyptian cities of Cairo and Alexandria consist of 1 square meter per capita green space respectively, and fall way below the Index average, even as the vast quantity of green space along the beachfront in the latter are not accessible to the public. Luanda, the capital city of Angola, is terribly devoid of green space with an insignificant estimate of 0.09 square meters per person, against the ideal Index average of 74 square meters. Accra, Ghana's capital city faces obvious challenges; nevertheless it is rated above average overall in the Index. Lush green areas abound in the suburbs of the city, where urban agriculture is practiced to provide the bulk of fresh vegetables for the city. However, the unavailability of data on green space per person in the city means that it is excluded from the assessment in this category (Siemens, 2011a).

The green city concept is the cornerstone of this study as it is indispensable to the creation, management, and maintenance of urban landscape development in the study area. It is also applied to create greenways, and integrate them with vegetated, reclaimed and established setbacks, open spaces, gardens and parks into a network of interconnecting greenbelts in the greening and beautification programme aimed at making great places in Ado-Ekiti. The green city concept is thus an indispensable tool to enable this southwestern Nigerian city to join the comity of green cities, surpassing Lagos' green space measure of mere 34 square meters per person, to belong to the class of Cape Town, Johannesburg and Durban that offer abundant green spaces.



(Source: Lehmann, S (ed.) 2015, *Low carbon cities: transforming urban systems*, Routledge, New York, p. 45.)

Figure 7. 7: The lush greenery of Bowden Urban Village, one of the largest urban renewal projects in Adelaide, Australia, offers a unique example of green urban infill model on revitalised city landscape.

Green city initiatives also guarantee the retention of natural elements which enhance city aesthetics, preserve the ecological system, nurture and breed biodiversity, effect atmospheric cooling, and improve urban comfort and liveability. A lush green landscape replica of Bowden Urban Village, one of the largest urban renewal projects in Australia, shown in Figure 7.7 will also reduce glare, offer relief from high temperatures in the tropical climate and redress climate change, thereby ensuring an ecological balance between people and nature and offering a conducive environment for various human activities befitting of a capital city such as Ado-Ekiti. This would enable it to reinvent itself to become a great place - a city of the future - and thereby position itself as a model worthy of replication, not only in the Nigerian landscape but also in the sub-Saharan African region.

## CHAPTER EIGHT

### THE PROFILE OF CASE STUDY AREA

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#### **8.0 Introduction**

This chapter presents the geophysical, socio-economic and cultural attributes of Ado-Ekiti. It also examines the land use pattern, development trends, the factors that influence development, and the state of the urban environment.

#### **8.1 Case Study of Ado-Ekiti**

Ado-Ekiti is subjected to continuous change in response to growth and expansion, and faces numerous socio-economic and environmental challenges. Despite planning laws and regulations, uncontrolled urban development has resulted in encroachment on open spaces and setbacks from buildings with concomitant effects on urban form, environmental quality and recreational opportunities. Ado-Ekiti was selected as a case study in order to determine the effects of environmental degradation and disorderliness in the state capital, and to address the imbalances in the urban environment in order to promote urban liveability, comfort, and environmental quality and sustainability. The study's findings could be applied to other cities in Nigeria, and in other developing countries.

#### **8.2 Geographical location**

Ado-Ekiti is strategically located within the central part of Ekiti State in the southwestern geopolitical zone of Nigeria (see Figures 8.1, 8.2, 8.3, 8.4 and 8.5). It lies on Longitude 5° 27' east of the Greenwich Meridian, and Latitude 7° 31' north of the Equator (Figure 8.4). As shown in Figure 8.5, Ado-Ekiti Local Government is bounded in the north by Irepodun/Ifelodun Local Government, in the east by Gbonyin Local Government, in the west by Ekiti Southwest Local Government, and in the south by Ikere Local Government. Ado-Ekiti is about 48km from Akure, the Ondo State capital, 200km from Ibadan, the Oyo State capital, 366km from Ikeja, the Lagos State capital, and 500km from Abuja, the FCT as depicted with concentric circles in Figure 8.4.



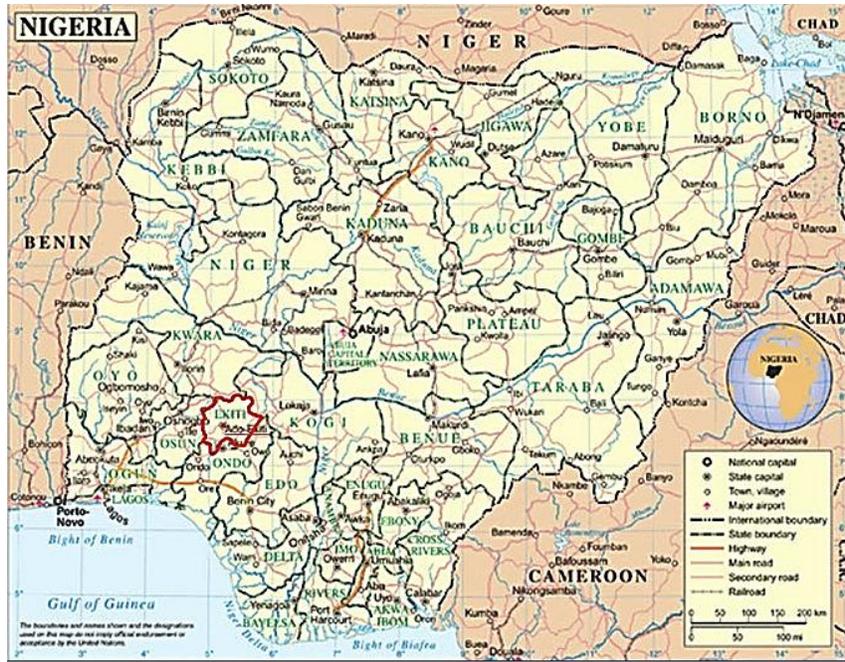
Source: Google Earth, 2015

Figure 8.1: Satellite imagery of Nigeria showing the location of Ado-Ekiti at the arrowed spot.

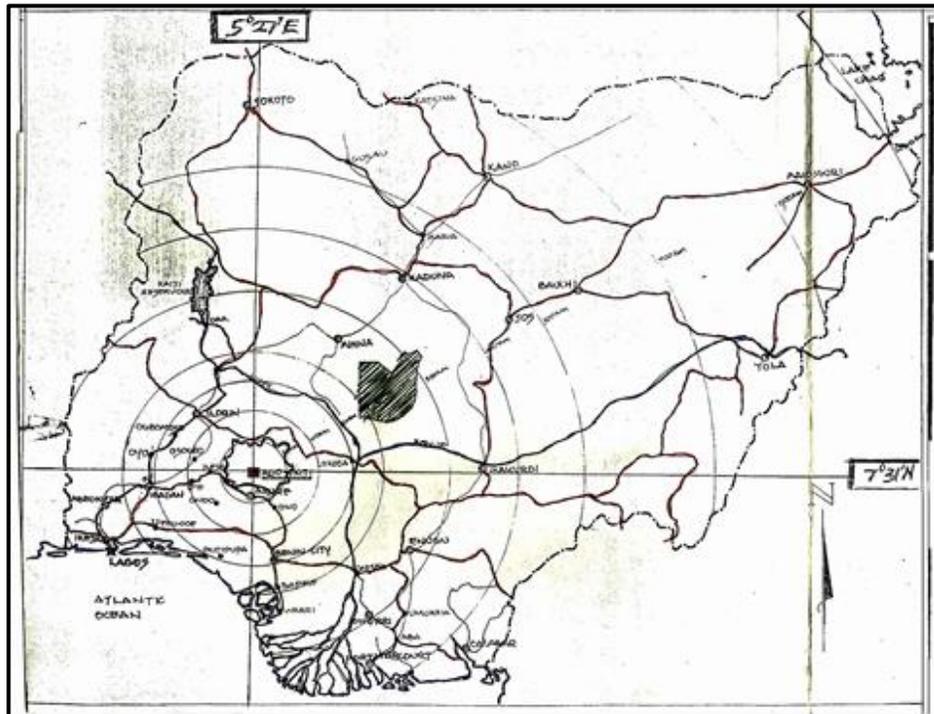


Source: Ekiti State Ministry of Lands and Housing, Ado-Ekiti.

Figure 8.2: Ekiti State in the national setting.



Source: [http://en.wikipedia.org/wiki/File:Un\\_nigeria.png](http://en.wikipedia.org/wiki/File:Un_nigeria.png), accessed 17 April, 2014.  
 Figure 8. 3: Ado-Ekiti in the national setting.



Source: Nigerian Primary Atlas for Social Studies, Oxford University Press, pp. 8- 9, (Modified by the Researcher).  
 Figure 8.4: The distance relationship of Ado-Ekiti with other cities and towns in Nigeria.



Situated almost entirely in the upper Ogbese River basin, Ado-Ekiti occupies the northwestern part of the Benin-Owena River Basin Development Area (see Figure 8.6) (Ebisemiju, 1993). Like many Yoruba towns, the predominant consideration in siting Ado-Ekiti was relief which the people believed offered them protection from invading enemies (Ojo, 1983). Lying completely in the group of pre-Cambrian Basement Complex rock that mostly form the base in Nigeria (Ebisemiju, 1993; Fadipe & Adeduro, 1993), the city is known for striking landforms of various geological and geomorphological origin and formation, which are used for cultural, hunting, recreation, tourism, and scientific research purposes (Afolabi, 1993a; Afolabi, 1993b).

### **8.3 Climate and Vegetation**

Ado-Ekiti falls within the Koppen's A climatic belt with a tropical wet and dry climate in the rainforest vegetation zone, where the sun is overhead at midday throughout the year. The average annual temperature is about 24°C, while the mean annual rainfall is between 1000 mm and 1400 mm (Adebayo, 1993). Ado-Ekiti is located within the lowland rainforest zone where forests are generally characterized by numerous tree species that not only provide natural habitats for wildlife, but yield a wide range of products such as produce, timber, wood for fuel, drugs, ornamentals and spices for the sustenance of rural and industrial economies.

### **8.4 Historical background**

Ekitiland became autonomous in terms of the Treaty of 1886, which made it independent under the Lagos Colonial Government. By 1913, Ekitiland was a separate division, and in 1914, when the Northern and Southern Protectorates were amalgamated, the new Ekiti Division was grouped with other divisions in the newly-created Ijebu Province. In 1915, Ekiti and Ondo divisions merged to form the now defunct Ondo Province. By virtue of the Lord Lugard Reforms of 1916, Ado-Ekiti occupied a unique political position as the seat of administration with its emergence as the headquarters of Ekiti Divisional Council. It maintained its socio-cultural and political leadership role until 1952 when Ado-Ekiti District Council was created. When Ondo State was created in 1976, Ado-Ekiti remained the headquarters of the newly created Ekiti Central LGA, which gave way to the Ado-Ekiti and Irepodun/Ifelodun LGAs in 1989 (Adebayo & Adefolalu, 1993). In 1996, following the creation of Ekiti State from the old Ondo State, Ado-Ekiti assumed the dual role of headquarters of Ado-Ekiti Local Government and the capital city of the new

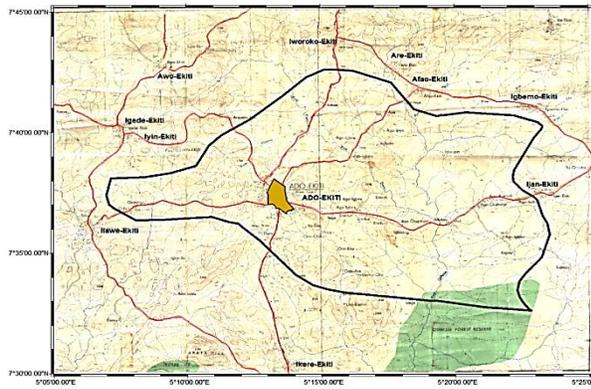
state. Since then, the city has experienced unprecedented concentration of land use activities that stimulate population growth, and generate a high volume of vehicular and pedestrian traffic. The space required for human activities and movement puts pressure on land resources, and in the face of ineffective policy enforcement, leads to encroachment on setbacks and open spaces in the fledging capital city.

### **8.5 Evolutionary trends**

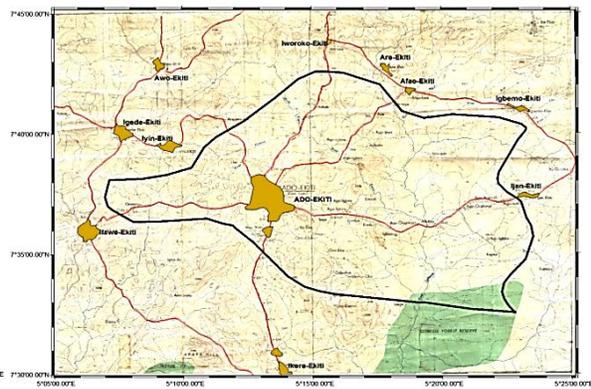
Like many other Yoruba cities, Ado-Ekiti evolved in the pre-planning era and generally lacks physical planning without a good layout except in some recent residential layouts in the peri-urban precincts. The roads radiate from the city center where the king's palace, sacred forest and market are located to the surrounding settlements. Fadamiro (2002) observed that the pre-colonial built up areas of the inner city are typified by highly populated residential buildings, heavy commercial activities, and light industrial land uses without adequate provision for public open space amenities, infrastructure and services. In addition, inadequate land use controls and policy implementation led to the city growing sporadically in different directions. There are few organized open spaces and green areas in the landscape of the cities, while setbacks and air spaces are grossly inadequate and wantonly abused.

### **8.6 Urbanization, development trends and city expansion**

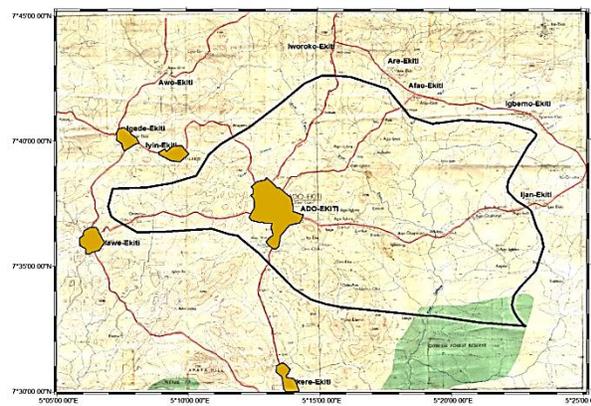
Mitchell (1966) refers to urbanization as the process of becoming urban by switching from agriculture to other pursuits common to cities with corresponding changes in behavior and consumption patterns. Blair (1974) observes that the three major forces shaping the future of cities are unprecedented growth in world population, massive movement of people into cities, and rapid economic and technological development. An obvious impact of urbanization is the physical expansion of urban centers. Several thousand hectares of land are occupied by a city's superstructure and paved roads that encroach on surrounding rural land. Cities are like cancer that spread relentlessly and obliterate everything in their path (Olatubara, 2004).



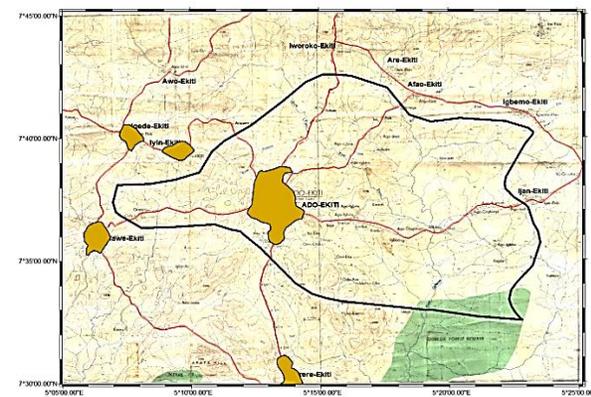
Ado-Ekiti Township, 1956



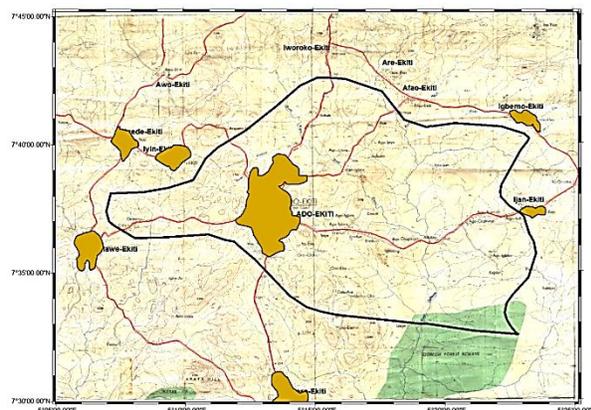
Ado-Ekiti Township, 1966



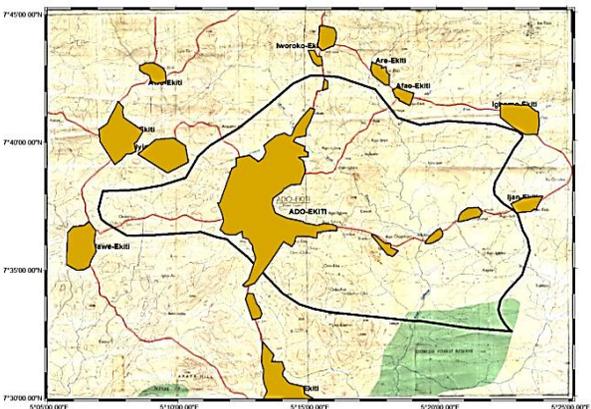
Ado-Ekiti Township, 1976



Ado-Ekiti Township, 1986



Ado-Ekiti Township, 1996



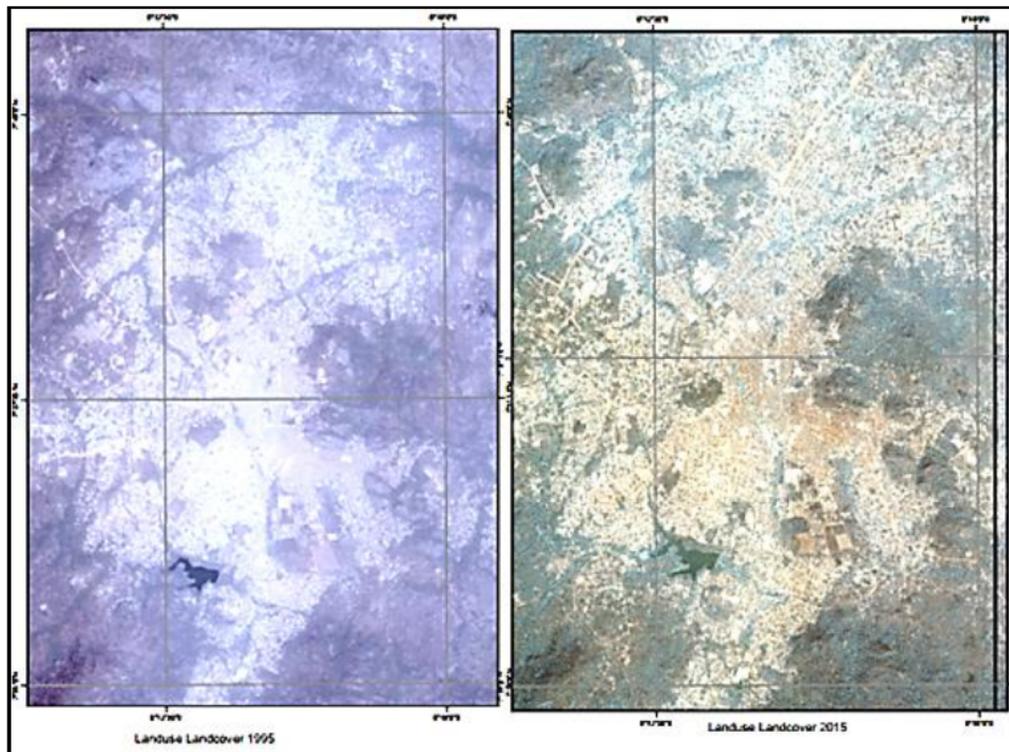
Ado-Ekiti Township, 2006

**LEGEND**

- Ado-Ekiti LGA boundary
- Major roads
- Built-up areas
- Outlying region
- Forest reserves

Source: Department of Survey and Geo-informatics, Federal Polytechnic, Ado-Ekiti, 2015.

Figure 8.7: Comparative growth of Ado-Ekiti Township spanning five decades from 1956 to 2006, and engulfing outlying fertile agricultural land, forests, hamlets and villages.



Source: Google Maps, 2015.

Figure 8.8: Satellite imageries showing land use coverage, sprawling and depletion of vegetation in Ado-Ekiti between 1995 and 2015.

In Ado-Ekiti region, the increasing use of automobiles combined with other factors of urbanization have scattered the capital city into the suburbs (Ojo-Fajuru 2001). Ojo-Fajuru and Adebayo (2016) finds that unplanned and uncoordinated urban development expanding into the outlying regions as a result of rapid urbanisation and commercialization, promotes sprawl that encroaches on opens spaces and depletes vegetal cover, thereby bringing about bare and choky neighbourhood environment in and around the state capital territory (see Figures 8.7 and 8.8).

Shimou (1994) acknowledges that, while city growth is a sign of development, the manner of urban land expansion viz-a-viz the loss of vital open spaces and prime agricultural land is cause for concern. The uncontrolled physical expansion of cities engulfs smaller villages on the periphery and fertile agricultural land. Uncontrolled and unauthorized urban development occurs without the necessary amenities. Figure 8.7 depicts the serial expansion of Ado-Ekiti spanning

the five decades from 1956 to 2006, while Figures 8.8 and 8.9 vivify sprawling and depletion of vegetal cover in the city between 1995 and 2015.



Imagery ©2015 CNES / Astrium, Cnes/Spot Image, DigitalGlobe, Landsat, Map data ©2015 Google 2 km

Source: Google Maps, 2015.

Figure 8.9: Satellite imagery exposing the cancerous spreading of Ado-Ekiti into the surrounding region.

### **8.7 Population, growth dynamics and socio-economic activities**

According to the 1963 Nigerian Census, Ado-Ekiti had a population of 157,159 people and was the largest town in the old Ondo State. In 2001, National Population Commission figures showed that the population of Ado-Ekiti had increased significantly to 208,414. Using 2001 as the base year, and a population growth rate of 2.9% per annum (according to a National Population Commission, Federal Office of Statistics, National Planning Commission, and World Bank Release), the projected population figures for Ado-Ekiti for 2008, 2010 and 2015 are 254,578, 269,542, and 310,954, respectively (see Appendix I). The various economic activities in Ado-Ekiti fall within the following categories: primary production like farming, fishing, weaving and hunting; secondary production like manufacturing and processing; and tertiary employment such as the civil service and professional service. The fourth category is the informal sector dominated by the self-employed engaged in trading and service activities as a survival strategy in the wake of widespread youth unemployment and economic downturn. Many economic activities are concentrated in the nerve center - the CBD - and other major streets and hierarchies of roads.

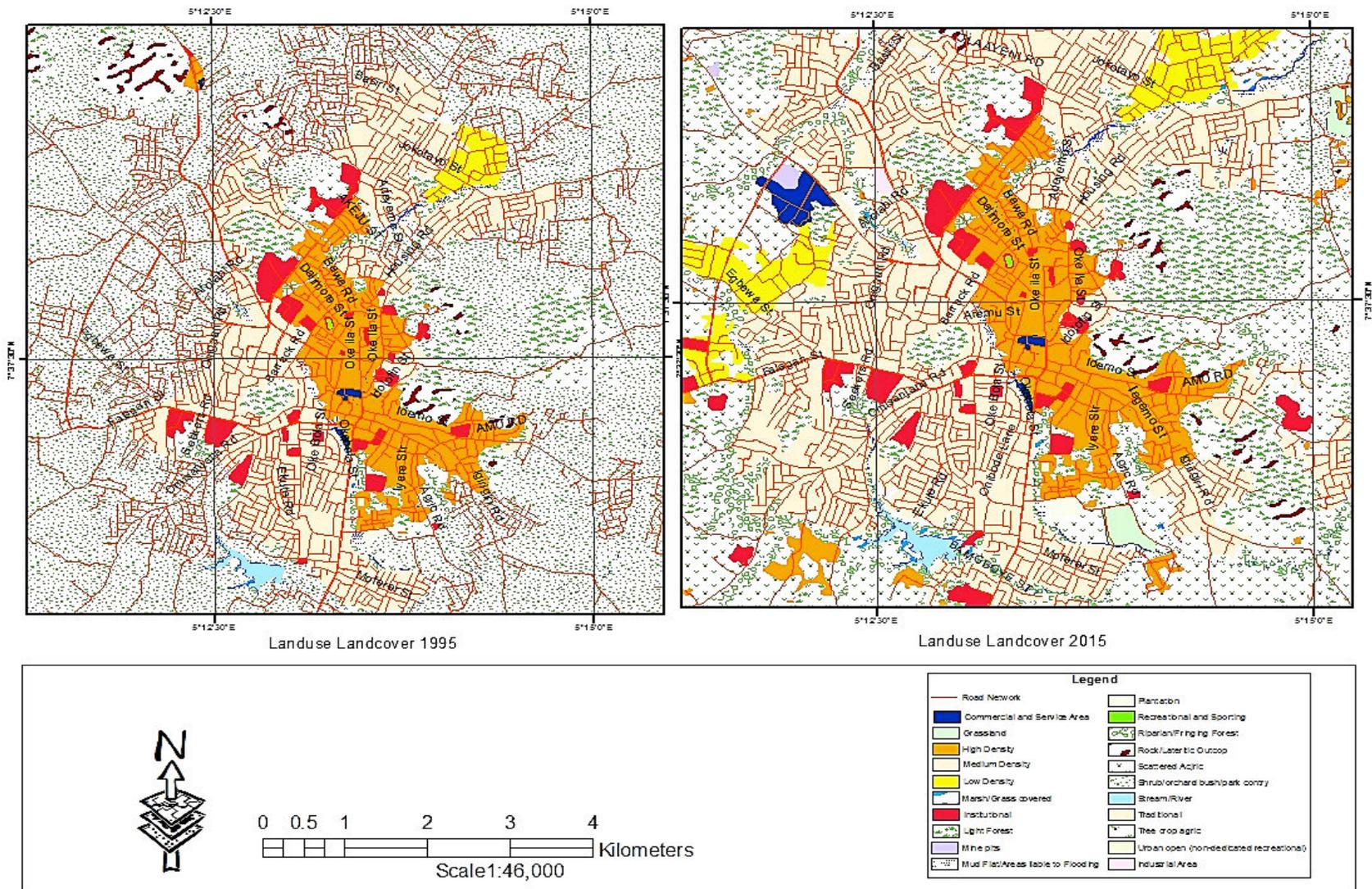
## **8.8 Land use pattern**

The spatial structure of Ado-Ekiti reflects a lack of planning in the morphology of the urban web that is typical of traditional Yoruba cities (Ojo-Fajuru & Adebayo, 2014b). Ojo-Fajuru and Adebayo (2014a) note, that these cities experienced rapid growth and development which led to vegetal cover being replaced by buildings and agriculture, leading to amorphous expansion to the outlying forests. This is evident in the high density inner city residential areas that existed since the pre-colonial era that preceded the advent of planning. On the other hand, the periphery areas in the suburbs that developed during the post-colonial era show limited degrees of planning.

By and large, residential land use is predominant, while commercial, industrial, and mixed uses characterize the built-up areas with little or no provision for open spaces and green landscaping in the spatial structure of the city as shown in the comparative land use maps in Figure 8.10 revealing the changes in land use between 1995 and 2015. There are few or no trees or greenery within the city as development expanded into the outlying suburbs, destroying vegetation and encroaching on setbacks and open spaces. The spatial structure in Ado-Ekiti thus reflects amorphous, hazardous development and a lack of open spaces and green infrastructure (Ojo-Fajuru & Adebayo, 2014b), which Ojo-Fajuru and Adebayo (2016) describes as the bane of the city. The satellite images and aerial view of Ado-Ekiti in Figures 8.9, 8.11 and 8.12 demonstrate this planless trend.

## **8.9 Factors that influence development**

Ado-Ekiti is one of the oldest towns in Nigeria that emerged over 700 years ago, having been founded by ‘Elewi, Oba Ado’ in a manner reminiscent of several Oduduwa children who embarked on princely adventures from Ile Ife to establish their own territory (Adebayo & Adefolalu, 1993). According to Oba Aladesanmi (1977), the peace brokered between the Ekitis and their Ife and Ijebu allies, and the Ibadans in terms of the treaty of 1886 granted independence to Ekitiland under the Lagos Colonial Government. With the creation of the Ekiti Native Authority in 1916 to facilitate governance of the entire Ekiti geo-political area under the then British Government, Ado-Ekiti was made the headquarters.



Source: GIS Lab, Department of Geography, University of Lagos, Akoka, Lagos, 2016.

Figure 8.10: Comparative land use maps showing land use modification between 1995 and 2015.



Imagery ©2015 DigitalGlobe, CNES / Astrium, Map data ©2015 Google 500 m

Source: Google Maps, 2015.

Figure 8.11: Satellite imagery of Ado-Ekiti revealing scanty green spaces in the built-up residential districts and amorphous expansion in all directions into the suburbs.



Source: Field survey, July 2015.

Figure 8.12: Aerial view exhibiting largely amorphous development heading formlessly to the suburbs with inadequate open spaces and scanty greenery in spatial structure of the city.

A number of administrative organs were established, including the conference of Ekiti traditional rulers popularly called '*Pelupelu*', which began in 1919 with the Ewi of Ado-Ekiti as the recognized administrative head or the Primus administrative agent (Isijola, 1993). Olomola (1984) posits that, "as the seat of the colonial administration, Ado-Ekiti became the begin-all and end-all of the British order and peace in Ekiti".

The city emerged as the cultural headquarters of the Ekiti people, establishing cultural and political hegemony over Ekitiland to the extent that:

[a]s the seat of the Ekiti Native Administration, Ado-Ekiti housed the District Officer and his assistant, the Treasury, the Native Authority and the Nigerian Police Stations, the Native Authority and the Divisional Courts, the Prisons, the Native Authority's administrative Officers (all located in [*Oke Bareke* meaning Barracks Hill] the area known today as the Government Reservation Area G.R.A.) as well as all categories of staff of these various institutions. (Adebayo & Adefolalu, 1993, p. 4)

Ado-Ekiti was the headquarters of the splinter Ado-Ekiti District Council carved out of the Ekiti Native Authority in 1945, a split that marked the legal separation of Akure from the Ekitis (Isijola, 1993). It maintained this position until 1952 when Ado-Ekiti District Council was created, and was the headquarters of Ekiti Central Local Government when Ondo State was established in 1976. It was the headquarters of Ado-Ekiti Local Government from 1989, until Ekiti State split from Ondo State in 1996, and Ado-Ekiti became the local government headquarters-cum-state capital.

Ado-Ekiti ranks among the third generation state capitals in Nigeria. As a rapidly growing, medium-sized urban center, it has experienced unprecedented expansion in the two decades since its emergence as Ekiti State capital. Ado-Ekiti is also an important educational center boasting two universities and a university teaching hospital, two polytechnics, and schools of nursing and midwifery. These act as pull factors for people from the surrounding regions that move into the city for employment and other survival activities, some of which have negative impacts on building setbacks and open spaces.

According to Orubuloye (1993), rural-urban migration has contributed significantly to the general increase in Ado-Ekiti's population, especially since the creation of Ondo State in 1976,

and the “subsequent mass movement of people from different parts of the State and elsewhere to Ado-Ekiti, the headquarter of the Ekiti Central Local Government”. Urban migration peaked in 1996 shortly after Ado-Ekiti emerged as the capital city of the newly created Ekiti State. Orubuloye (1993) also attributes population growth in Ado-Ekiti to the general drop in mortality rates coupled with a sharp increase in fertility levels in the region. However, this rapid growth and administrative, educational, commercial, and industrial development put pressure on land resources. This is the root cause of space contestation that led to diminishing open spaces and greenery, which this research founded and intended to revert towards establishing sustainable landscape and liveable environment in Ado-Ekiti.

## CHAPTER NINE

### RESEARCH ANALYSIS AND DATA PRESENTATION ON CASE STUDIES

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#### **9.0 Introduction**

This chapter presents the research results and analysis based on specific case studies. It discusses the respondents' socio-economic characteristics, the spatial structure of the city, spatial distribution and typology of setbacks and available open spaces, and the extent of encroachment on such spaces and setbacks. Government's efforts to reclaim setbacks and open spaces are assessed, as well as its initiatives to green reclaimed and other setbacks and open spaces. An impact assessment of greening setbacks and open spaces in the capital city is presented. The study's findings are discussed in relation to its objectives and the relevant literature. Its hypotheses are tested and the implications of the findings in relation to its theoretical framework are highlighted.

#### **9.1 Sorting and collation of data from the field survey based on specific case studies in the study area**

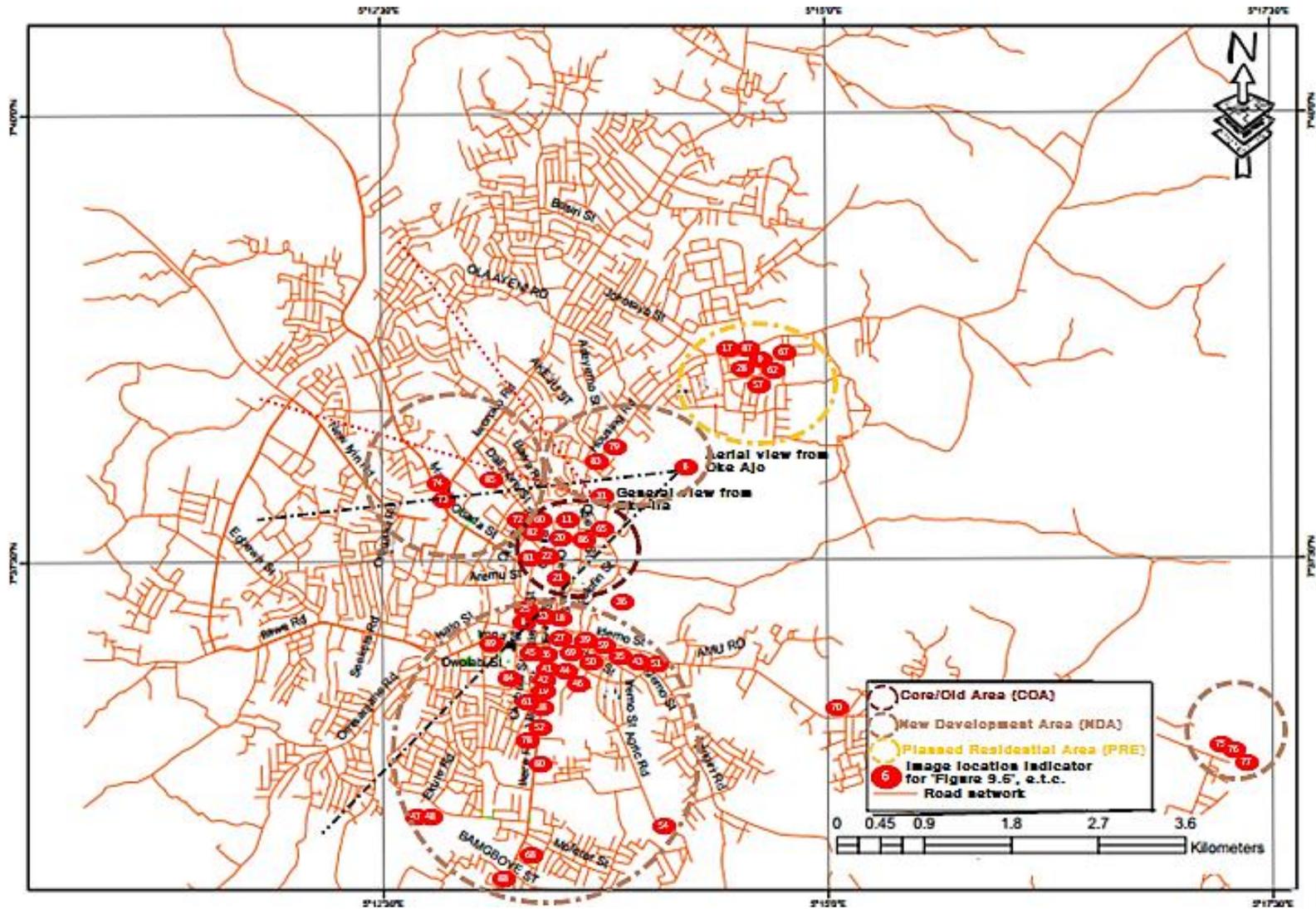
A total of 3,756 questionnaires were administered of which 3,708 were collected. These were sorted to determine the adequacy of completion, following which 3,324 questionnaires were accepted for collation and analysis, a response rate of 88.50%, which is deemed adequate. The accepted questionnaires were coded and keyed into SPSS software for collation and processing.

#### **9.2 Processing and analysis of research results**

The SPSS software was indispensable in the collation, processing, and analysis of data as well as the generation of graphical representations and further inferential analysis of the results. The data analysis technique utilises the descriptive statistical tools such as tables showing frequency distribution of responses, the mean average and mode; graphs, and charts - bar and pie, based on a number of variables and the level of data measurement.

#### **9.3 Data analysis, presentation, interpretation and discussion of results**

The following discussion of findings, based on the results derived from data analysis reveals the wanton encroachment and misuse of setbacks and open spaces in the case study areas, which



Source: Drawn by the Researcher based on field survey, July 2015.

Figure 9. 1: Street location of photographs showing the existing situation of places in residential districts selected for case study in the three morphological zones of the city.

threaten socio-economic wellbeing, sustainable landscape and liveable environment in Ado-Ekiti. Figure 9.1 shows the location of photographs taken to capture the existing situation of places in residential districts selected for case study in the three morphological zones of the city.

### 9.3.1 The spatial structure of the study area

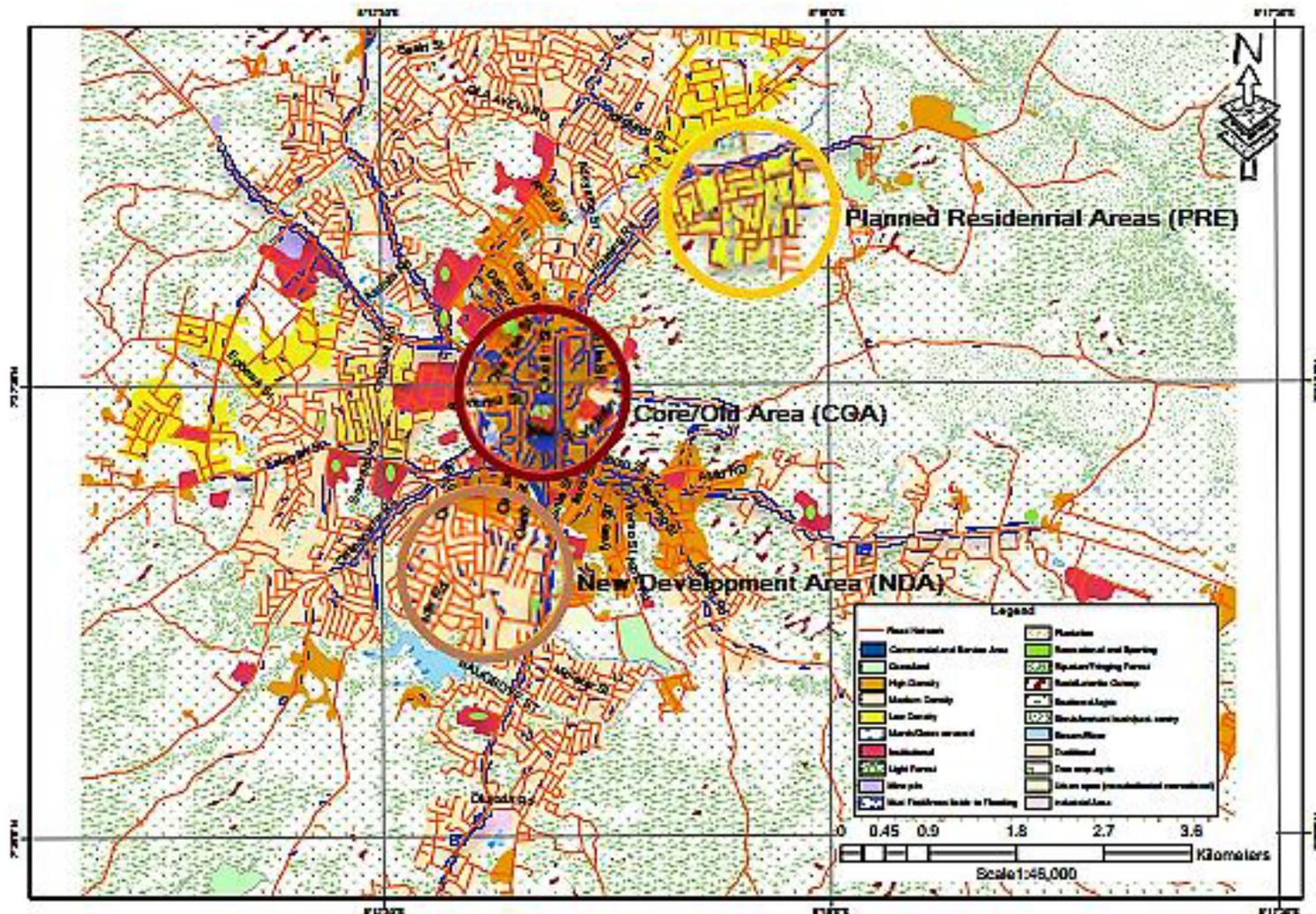
The case study areas in Ado-Ekiti present a spatial structure dominated by residential land use within each of the identified morphological zones of the city as shown in Figure 9.3, and the peculiar development in each zone detailed in Figures 9.4, 9.5 and 9.6. It is revealed that the core areas and new development areas exhibit a lack of planning, which is characteristic of traditional Yoruba cities. Formless development, which predated the colonial era, means that planning is less apparent in the densely populated inner city residential areas and new development areas. There is a departure from the uncontrolled development in some parts of the fringes and periurban areas in the suburbs that thrived as colonial GRAs. The planned residential estates from the post-independence era to the present show some evidence of planning, but were gradually infilled with spontaneous development that sprawls into the surrounding regions as



Source: Field survey, July 2015.

Figure 9. 2: Aerial view of Ado-Ekiti showing development sprawl into the surrounding regions.

seen in the aerial view of the capital city in Figure 9.2. This correlates with Ojo-Fajuru and Adebayo's (2014a) recent observation that both Ado-Ekiti and Akure, the contiguous capital city of Ondo State, experienced rapid growth and development which led to vegetal cover being replaced by buildings and agriculture, leading to expansion into the outlying forests.

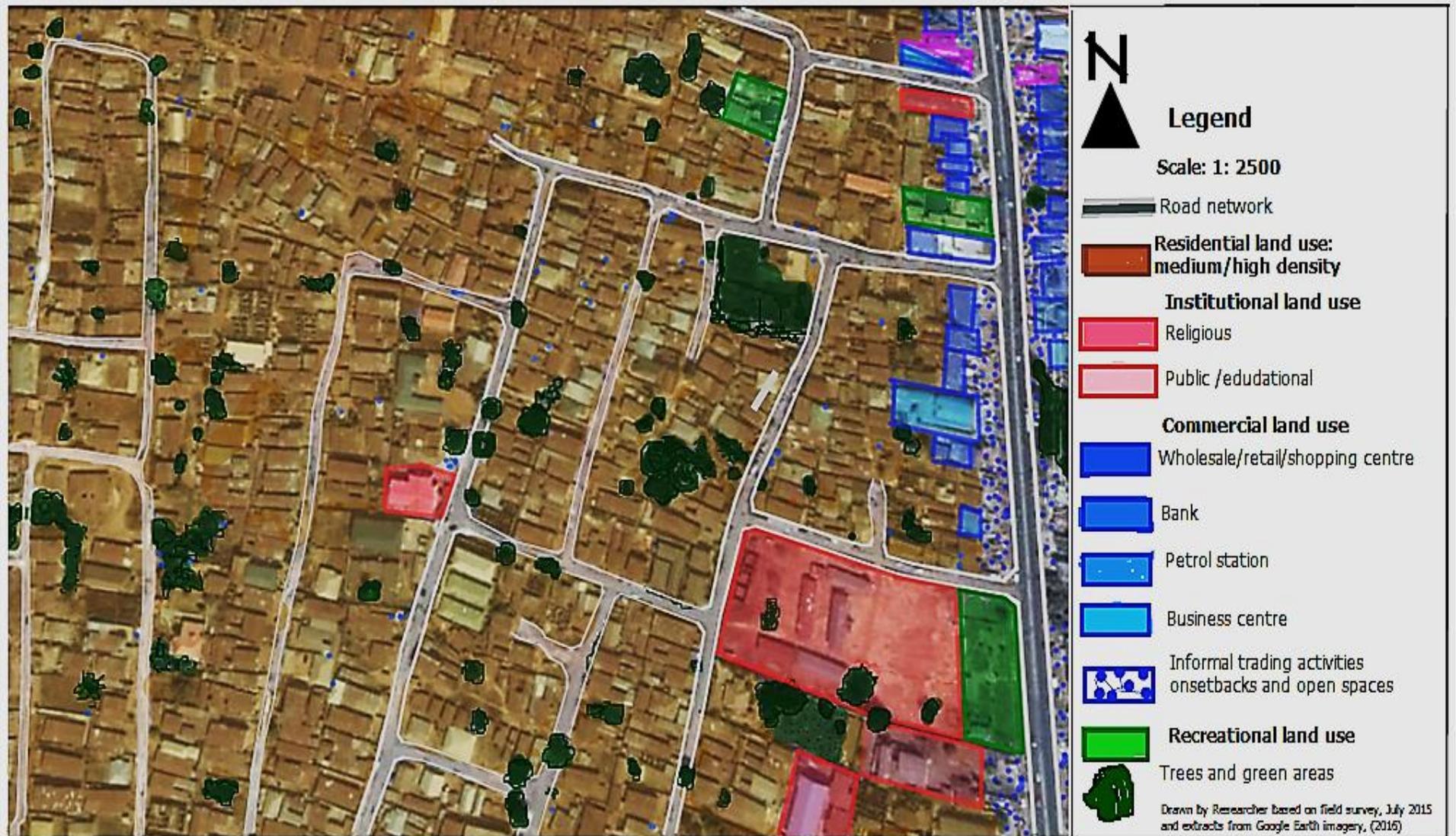


Source: Drawn by the Researcher based on field survey, July 2015.

Figure 9. 3: The spatial structure of Ado-Ekiti, dominated by residential land use, shows evidence of planlessness, typical of the core and new development areas, with the exception of the planned residential estates as shown in the morphology of places in the city.



Source: Drawn by the Researcher based on field survey July 2015 and extracts from Google Earth imagery (2016).  
 Figure 9. 4: The morphology of places in the core/old areas (COAs) in the city.



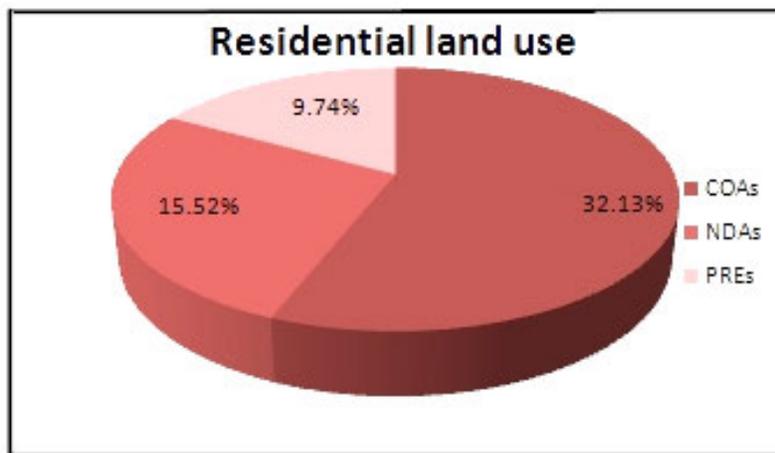
Source: Drawn by the Researcher based on field survey July 2015 and extracts from Google Earth imagery (2016).  
 Figure 9. 5: The morphology of places in the new development areas (NDAs) in the city.



Source: Drawn by the Researcher based on field survey July 2015 and extracts from Google Earth imagery (2016).  
 Figure 9. 6: The morphology of places in the planned residential areas (PREs) in the city.

## Residential land use

The data analysis presented in Figure 9.7 shows that residential land use is dominant, representing 57.40% in the spatial structure of the city. This is obviously clear in the districts surveyed across two of the three morphological zones, whereby residential land use accounts for 82.28% of the total land use in the core/old areas (COAs), translating to 32.13% of land use in the delineated study area. In the new development areas (NDAs), residential land use is 33.08%, amounting to 15.52% of total land use; while within the planned residential estates (PREs) residential land use represents 68.35% or 9.74% of total land use in the delineated study area.



Source: Field survey, July 2015.

Figure 9. 7: Residential land use is the dominant sector in the spatial structure in the morphological zones of the city.

The total land coverage of Ado-Ekiti, estimated by the World Gazetteer (2012), was 293km<sup>2</sup>. The calculated current planimetric surface area of the city, including hills, road network, utility in two dimensional planes as seen from Google Earth imagery (2016), is 302.87 km<sup>2</sup>. Residential land use covers 57.40% of the surface area coverage, translating to 173.85 km<sup>2</sup> of the city, while the Government of Ekiti State (2017) puts the residential density at 4,399 persons per km<sup>2</sup>. This relatively high density is reflected in the average household size, and occupancy ratio in the city, which vary from one morphological zone to another. Respondents having family members numbering between 6 and 10 persons are in the majority of 68.3%, while those whose family size fall within the range of 11 to 15 members constitute 12.1 %.



Source: Field survey, July 2015.

Figure 9. 8: Aerial view of Igbehin district, a predominantly residential area the unplanned core/old area of the capital city.



Source: Field survey, July 2015.

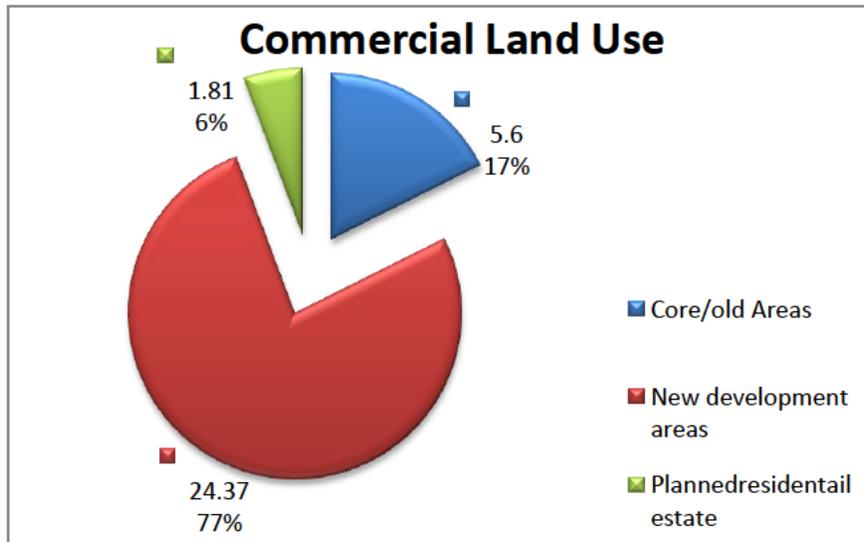
Figure 9. 9: 7th Avenue in State Residential Estate, Oke-Ila in the planned residential areas of Ado-Ekiti.

These two categories of large household sizes are mostly domiciled in the core/old areas (COAs) such as Ijigbo, and new development areas (NDAs) such as Oke Bola, where the average occupancy ratios are 6.4 persons per room and 4.5 persons per room respectively. Other respondents whose household size range from 1 to 5 members, representing 19.6% in the city, are largely found in planned residential estates (PREs) such as the State Housing Estate, Oke-Ila, with occupancy ratio of 2.3 persons per room. As typified in Igbehin district shown in Figure 9.8, it is implied that the COAs and NDAs are generally unplanned, characterized with choky development, more densely populated and overcrowded, devoid of greenery with resultant poor state of the environment than the PREs (Figure 9.9).

The study reveals that the housing environment falls short of standard space requirements for healthy living. As shown in the morphology of places in Figures 9.4, 9.5 and 9.6, only major distributor roads are tarred, while most of the collector and access roads have earth surfaces, lack good drainages, and are in poor condition - muddy in the wet season, and dusty in the dry period. Generally, there is scarcity of green landscaping elements like trees, hedges and grass within the residential districts of the city, which is more obvious in the COAs and NDAs than the PREs. Setbacks spaces meant for greening are either inadequate or have been converted to commercial or other sundry uses. Except for Fajuyi Park along Iyin Road, there is virtually no provision for parks, open spaces and children's playground, while there are few or no spaces around buildings for recreation and parking. The high occupancy ratio, poor ventilation, open fires or stoves, waste management challenges, public utility deficits, and shortage of space for recreation decrease air quality and cause discomfort and the transmission of communicable diseases with serious implications for health as well as private and public expenditure.

### **Commercial land use**

Commercial use intensified in response to urbanization and commercialization and is the second largest in the spatial structure of morphological zones of the city. Figure 9.10 shows that commercial land use such as markets, wholesale and retail outlets, banks, petrol stations and business centers constitutes 14.42% within the COAs, and 5.60% of the overall land use, but higher in the NDAs with 51.92% within the zone and 24.37% in the total land use (Figure 9.10).



Source: Field survey, July 2015.

Figure 9. 10: Commercial land use is more prominent in the new development areas of the city.

With the non-availability of market, bank and petrol station in this zone, the PREs have the smallest commercial land use making up only 12.68% of the district and 1.81% of overall land use in the study area. Commercial land use constitutes a significant 31.78% of overall land use in the study area. The sectoral percentage of commercial land use in the study area is 17% for the COAs, 77% in the NDAs, while the remaining 6% is available in the PREs.

There is no provision for planting and green spaces within the commercial uses. All three zones are characterized by informal commercial activities on setbacks and open spaces along the roads; especially major roads like Ijigbo Street, Ajilosun Street, Mathew Street, Orereowu Street, Igbehin Street, Irona Street, Okesha Street and Ogbon Oba (see Figures 9.3, 9.4, 9.5 and 9.6). The implication is that these informal commercial activities have subtracted all elements of greenery from the city, since they indiscriminately occupy spaces that should be treated as green areas. This is evident in the acute shortage of the greens in the city as can be perceived in the aerial views in Figures 9.2 and 9.8.

### Public/institutional land use

The field survey established that public/institutional land use covers 2.88% of the spatial structure of the city. Within the morphological zones, the data in Table 9.1 reveals that this

general purpose activity area is a mere 0.47% in the COAs, or 0.18% of overall land use. In the NDAs, public/institutional land use accounts for only 2.69% translating to 1.26% of overall land and the PREs record 10.13% and 1.81% of public/institutional land use in the zone overall land use, respectively. Thus, more land is given over to public/institutional land uses in the PREs than in any other zone in the study area.

Morphological Zone	Total No. of Respondents in the Study Area	No. of Responses for Public Use	% within Zone	% Overall
Core/old areas (COAs)	1290	6	0.47	0.18
New development areas (NDAs)	1560	42	2.69	1.26
Planned residential estates (PREs)	474	48	10.13	1.81
<b>Total</b>	<b>3324</b>	<b>96</b>		<b>2.88</b>

Source: Field survey, July 2015.

Table 9. 1: Public/institutional land use in the spatial structure of morphological zones in the city.

Except for the background forest in the Palace of the Ewi of Ado-Ekiti in the COA (which has also been depleted over the years), there is no provision for trees, shrubs and flowers within the public/institutional land use of the city (see Figures 9.4, 9.5 and 9.6). Setbacks spaces around the buildings that could have been devoted to planting and beautification are occupied mostly by commercial uses. It is observed that the alienation of these public places by commercial activities is gradually taking institutional land uses out of the public realm.

### **Religious land use**

Table 9.2 below shows that, religious land use represents 2.53% of the spatial structure of the city. This comprises of 1.86% in the COAs, or 0.72% of overall land use, with a slight increase to 3.85% in the NDAs translating to 1.81% of overall land use. Religious land use is very scarce or virtually non-existent in the PREs. Apart from Orthodox and Protestant churches such as St. Patrick's Catholic Cathedral Church, Emmanuel Anglican Cathedral Church, St. David's African Church, Christ Apostolic Church, Methodist Church, First Baptist Church, and the Central Mosque which have dedicated building sites, residential buildings are converted to accommodate other new generation Pentecostal churches such as the Redeemed Christian Church, Jesus Chapel and the Rebirth Church of God as seen in Oke-Ila in the NDA of the city (Figure 9.11)

Morphological Zone	Total No. of Respondents in the Study Area	No. of Responses for Religious Use	% within Zone	% Overall
Core/old areas (COAs)	1290	24	1.86	0.72
New development areas (NDAs)	1560	60	3.85	1.81
Planned residential estates (PREs)	474	-	-	-
<b>Total</b>	<b>3324</b>	<b>84</b>		<b>2.53</b>

Source: Field survey, July 2015.

Table 9. 2: Religious land use is more available in new development areas but virtually non-existent in planned residential areas in the spatial structure of morphological zones of the city.



Source: Field survey, July 2015.

Figure 9. 11: A residential building recently renovated and converted to a church at Oke-Ila Street.

Some of religious land uses such as St. Paul’s Anglican Church, Odo-Ado and the Apostolic Faith Church, Ajilosun are endowed with tree planting, while others such as the Central Mosque and the First Baptist Church, Ogbon Oba are devoid of greenery due to maximum use of space and the encroachment of their surroundings with commercial activities.

### Recreational land use

The findings show the quantitative deficiency of recreational land use in the study area. As shown in Figure 9.12, this type of land use is virtually non-existent within the COAs. Recreational land comprises 1.92% in the NDAs, amounting to 0.9% of overall land use.



Source: Field survey, July 2015.

Figure 9. 12: Recreational land use is scanty indicating quantitative deficiency in the spatial structure of morphological zones of the city.

The PREs have more recreational land, constituting 7.60% of land use in the zone, and 1.08% of the spatial structure of the city. In terms of overall land use, recreational land use comprises a paltry 1.98% in the spatial structure of the city. Findings show that apart from for Fajuyi Park along Iyin Road, there is virtually no provision for public parks, organised recreational open spaces, gardens and playground. Most relaxation spots such as Inland Club and the Ekiti Golf Club are not open to the public as they are exclusively reserved for members. The perception of the people is consensual that governments have neglected the provision of recreational infrastructure and facilities for the private sector, which is profit oriented. It is implied that the acute shortage of public recreational spaces has implications on health, wellbeing and liveability in the city.

### Industrial land use

Industrial land use is also sparse in the study area. The data presented in Table 9.3 shows that there is no industrial land use in the COAs, while it is available within the NDAs at 1.92% within the zone, equating to 0.90% of overall land use. The availability of industrial land is very low at 1.27% within the PRE zone, translating to 0.18% of overall land use in the study area, while it occupies a total of 1.08% in the spatial structure of the city.

Morphological Zone	Total No. of Respondents in the Study Area	No. of Responses for Industrial Use	% within Zone	% Overall
Core/old areas (COAs)	1290	-	-	-
New development areas (NDAs)	1560	30	1.92	0.90
Planned residential estates (PREs)	474	6	1.27	0.18
<b>Total</b>	<b>3324</b>	<b>36</b>		<b>1.08</b>

Source: Field survey, July 2015.

Table 9. 3: Industrial land use is sparse in the spatial structure of the capital city.

The survey reveals that medium size industries such as the textile industry and Omolayo Standard Press are located on well-landscaped sites on the outskirts of the city. On the other hand, some of light industrial uses such as grinding and milling, metal works and fabrication, carpentry and furniture, and bakeries are located within residential districts or along road setbacks in the three morphological zones without provision for green landscaping, thereby contributing to the scarcity of greenery in the city.

### Undeveloped land

Undeveloped land is uncommon in the study area. Figures 9.4 and 9.5, and Table 9.4 show that, undeveloped land is not available in the COAs and the PREs, but in the NDAs, it represents a mere 1.54%, making up 0.72% of the spatial structure of the study area. Generally, all the districts in two of the three morphological zones, that is, the COAs and NDAs were absolutely

Morphological Zone	Total No. of Respondents in the Study Area	No. of Responses for Religious Use	% within Zone	% Overall
Core/old areas (COAs)	1290	-	-	-
New development areas (NDAs)	1560	24	1.54	0.72
Planned residential estates (PREs)	474	-	-	-
<b>Total</b>	<b>3324</b>	<b>24</b>		<b>0.72</b>

Source: Field survey, July 2015.

Table 9. 4: Undeveloped land is scarcely available in the spatial structure of morphological zones of the city.

built up and dominated by residential land use. Commercial, industrial, and mixed uses were incorporated into the spatial structure in response to urbanization and commercialization. The findings show that except in the PREs, these other uses were not consciously planned, but derived from the arbitrary change from residential use, or informal usurping of available spaces, with little or no provision for open spaces and green landscaping. In effect, the land uses in the city setting are mostly bare, with few or no trees or greenery as shown in the overall land use map in Figures 9.13. The outlying city regions are offshoots of built-up areas expanding into the peripheral suburban districts, with attendant vegetal destruction and landscape exposure, encroachment on setbacks and open spaces, and inadequate or a total lack of green spaces. Thus, the prevailing spatial structure in Ado-Ekiti, most especially in the core and new development areas, exhibits amorphous development and the inadequacy of open spaces and green infrastructure, which reduce liveability and attraction as a great place in the capital city.

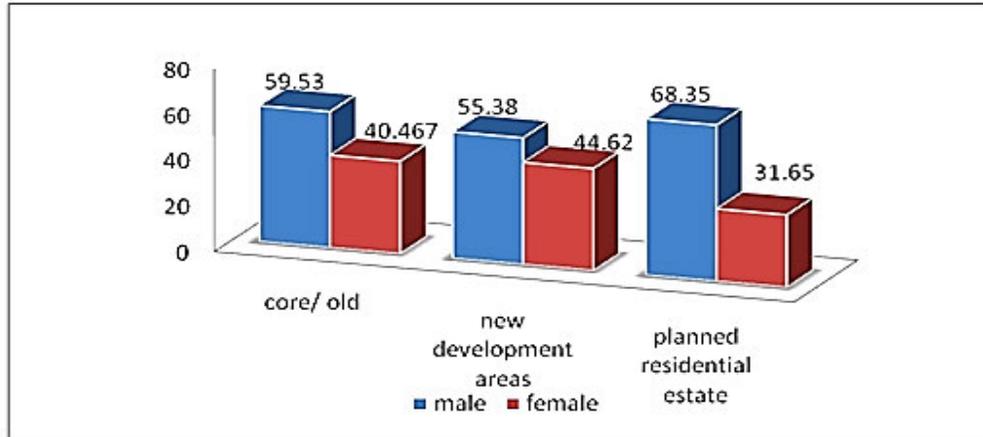
### **9.3.2 The socio-economic characteristics of residents in the study area**

Determination of the baseline characteristics of residents in the study area was crucial as it helped to shed light on how socio-economic background affects behavioral patterns in the use of land. These characteristics are also indispensable for cross tabulation with other variables for trend analysis to test hypotheses. The attributes considered for the survey were gender, age, marital status, place of origin, and educational attainment, employment status, and income group.

#### **Gender**

Figure 9.14 below indicates that there were more male than female respondents in all the sampled districts in Ado-Ekiti. Males and females constituted 59.53% and 40.47%, respectively in the COAs; and 55.38% and 44.62%, respectively in the NDAs. The latter had the highest number of female respondents. On the other hand, the PREs had the largest number of male respondents, at 68.35%, more than double the 31.65% recorded for female respondents. Overall, 58.84% of the respondents were male and 41.16% female. The skewed gender composition is connected to the fact that household heads were given preference in selecting respondents.





Source: Field survey, July 2015.

Figure 9. 14: The male gender outnumbers the females in all the selected districts in all morphological zones of the city.

In many African countries and in Yorubaland, patrilineal kinship means that family members are related to one another and traced through the male line. Men are natural household heads, and properties are passed from father to son, or to near agnate, and to the next generation (Ojo-Fajuru, 2010b). However, the fact that 41.16% of the respondents were female is an indication that women play crucial roles in the socio-economic and physical development of the city despite the culture of female subordination.

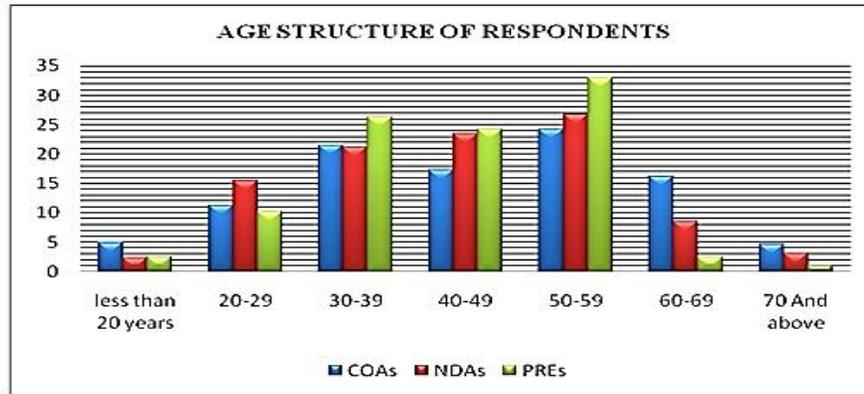
## Age

The age of the respondents interviewed across the three morphological zones ranged from 18 to 70 years and above (Table 9.5). In all the zones, most of the respondents were between the ages

Age Range	18-19 Yrs.	% within zone	20-29 Yrs.	% within zone	30-39 Yrs.	% within zone	40-49 Yrs.	% within zone	50-59 Yrs.	% within zone	60-69 Yrs.	% within zone	70 and above	% within zone	Total	% of Total
<b>COAs</b>	63	4.88	144	11.16	278	21.55	223	17.29	312	24.19	210	16.28	60	4.65	<b>1290</b>	<b>38.80</b>
<b>NDAAs</b>	36	2.31	240	15.38	331	21.22	366	23.46	409	26.73	132	8.46	48	3.08	<b>1560</b>	<b>46.99</b>
<b>PREs</b>	12	2.53	48	10.13	125	26.37	115	24.26	156	32.91	13	2.47	5	1.06	<b>474</b>	<b>14.26</b>
<b>Total</b>	<b>111</b>	<b>3.34</b>	<b>432</b>	<b>13.00</b>	<b>734</b>	<b>22.08</b>	<b>704</b>	<b>21.18</b>	<b>877</b>	<b>26.38</b>	<b>355</b>	<b>10.68</b>	<b>113</b>	<b>3.40</b>	<b>3324</b>	<b>100.0</b>

Source: Field survey, July 2015.

Table 9. 5: Age of respondents in selected districts across the three morphological zones of the city.



Source: Field survey, July 2015.

Figure 9. 15: Age of respondents in selected districts across the three morphological zones of the city.

of 30 and 59, while lower rates of response were recorded for those aged 18 to 29 on the lower rung, and 60 to 70 and above in the upper stratum, except in the core area where 210 respondents representing 16.28% within the zone fell within the age bracket of 60-69 against 8.45% and 2.47% NDAs, and PREs, respectively. Figure 9.15 above shows that 63.03% of the respondents in the COAs, 70.41% in NDAs, and 83.54 in PREs fell within the productive age group of 30 to 59. Nigerians generally retire between the ages of 60 and 65. The study further revealed that the population in the core areas tended to be older than that in the PREs, suggesting that the former might be more conservative than the latter.

### Marital status

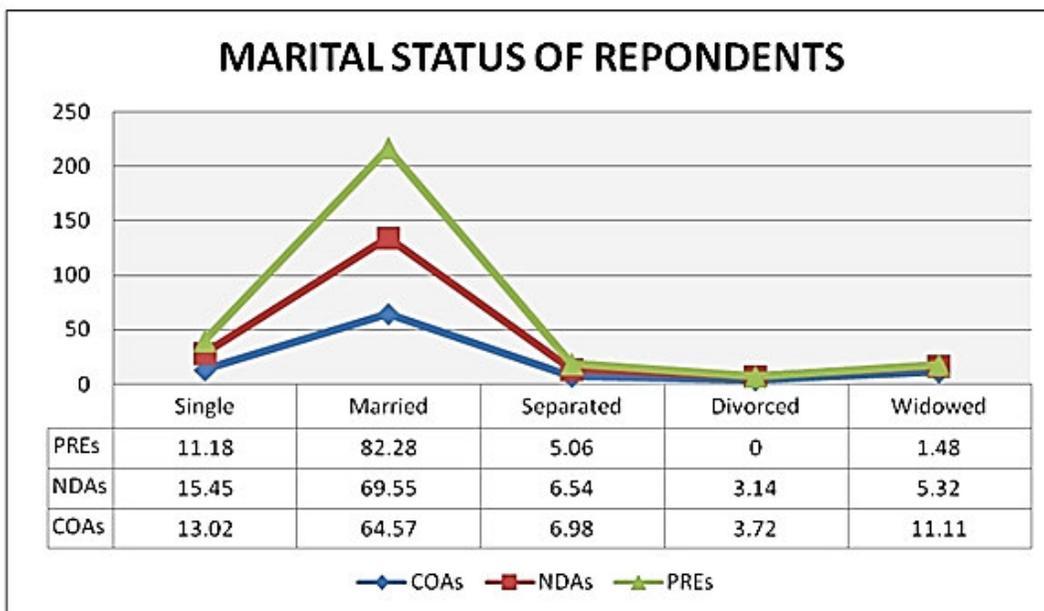
The majority (69.43%) of the respondents across the zones were married. This ranged from 64.57% in the COAs to 69.55% in the NDAs, and the highest rate of 82.28% in the PREs (Table 9.6). Overall, only 13.96% of the respondents were single. There were more single respondents

Marital Status	Single	% within zone	Married	% within zone	Separated	% within zone	Divorced	% within zone	Widowed	% within zone	Total	% of Total
COAs	168	13.02	833	64.57	90	6.98	48	3.72	151	11.11	1290	38.80
NDAs	241	15.45	1085	69.55	102	6.54	49	3.14	83	5.32	1560	46.99
PREs	53	11.18	390	82.28	24	5.06	-	-	7	1.48	474	14.26
<b>Total</b>	<b>462</b>	<b>13.96</b>	<b>2308</b>	<b>69.43</b>	<b>216</b>	<b>6.50</b>	<b>97</b>	<b>2.92</b>	<b>241</b>	<b>7.25</b>	<b>3324</b>	<b>100.0</b>

Source: Field survey, July 2015.

Table 9. 6: Marital status of respondents dominated by the 'married' in the three morphological zones of the city.

in NDAs at 15.45%. Only 216 respondents (6.50% of the sample population) were separated, with more separated respondents in the COAs and NDAs at 6.98% and 6.54%, respectively than in the PREs with just 5.06%. Furthermore, 11.11% of the respondents in the COAs and 5.32% in the NDAs were widowed, with 1.48 % in the PREs, constituting 7.25% overall. Only 2.92% of the respondents were divorced; at 3.72 % and 3.14% in the COAs and NDAs respectively and none in the PREs. Given that the majority of the respondents were married as shown in Figure 9.16, it can be concluded that population growth can be partially attributed to procreation in the study area.



Source: Field survey, July 2015.

Figure 9. 16: The domination of the ‘married’ in the three morphological zones of the city.

### Educational background

It was found that 39.38% of the respondents in the three morphological zones had tertiary education, with the highest frequency of 84.83% in the PREs and 24.33% and 38.08% in the COAs and NDAs, respectively (see Table 9.7). Furthermore, 39.05% of respondents in the COAs had secondary education, followed by 38.46 % in the PREs. About one in every ten respondents in the NDAs is educated up to secondary school level, with an overall percentage of 34.69% in the three morphological zones of the city. The statistics for primary education are similar. While the total percentage is 15.79% in the study area, 22.07% of the respondents in the COAs, the

largest in all the zones, had primary education as their highest level with 14.23% in the NDAs. The corresponding figure for the PREs was 3.85%. Overall, less than 10% of the respondents had no formal education, being 14.08% in the COAs, 8.01% in the NDAs and 1.07% in the PREs.

Educational Status	No formal Education	% within zone	Primary Educatn.	% within zone	Secondary Educatn	% within zone	Tertiary Educatn	% within zone	Others	% within zone	Total	% of Total
COAs	180	14.08	282	22.07	499	39.05	311	24.33	6	0.47	<b>1287</b>	<b>38.92</b>
NDAs	125	8.01	222	14.23	600	38.46	594	38.08	19	1.22	<b>1560</b>	<b>47.18</b>
PREs	5	1.07	18	3.85	48	10.26	397	84.83	-	-	<b>468</b>	<b>14.15</b>
<b>Total</b>	<b>310</b>	<b>9.38</b>	<b>522</b>	<b>15.79</b>	<b>1147</b>	<b>34.69</b>	<b>1302</b>	<b>39.38</b>	<b>25</b>	<b>0.76</b>	<b>3306</b>	<b>100.0</b>

Source: Field survey, July 2015.

Table 9. 7: Educational attainment of respondents in selected districts across the three morphological zones of the city.

These findings suggest that literacy levels are relatively high in the study area, especially in the GRAs and housing estates mainly inhabited by civil servants, professionals and high class citizens. The literacy level drops from the PREs to the NDAs and from the NDAs to the COAs, with educational attainment at its lowest in the oldest part of the city where a larger percentage of the aging population lives.

### Employment status

Five classes of occupation were given as options in the questionnaire to avoid the exaggeration of unemployment in the study area. Table 9.8 shows that informal activities were cited by 1,189 or 44.30% of the respondents in the NDAs, and 25.79% and 35.25 % in the COAs and PREs respectively were engaged in informal activities.

Employment Status	Student	% within zone	Unemployed	% within zone	Retired	% within zone	Employed Informal	% within zone	Employed Formal	% within zone	Others	% within zone	Total	% of Total
COAs	156	12.15	203	15.81	96	7.48	331	25.79	318	23.77	180	14.02	<b>1284</b>	<b>38.70</b>
NDAs	149	9.55	235	15.06	144	9.23	691	44.30	198	12.69	143	9.17	<b>1560</b>	<b>47.01</b>
PREs	42	8.86	31	6.54	41	8.65	167	35.25	162	34.18	31	6.54	<b>474</b>	<b>14.29</b>
<b>Total</b>	<b>347</b>	<b>10.46</b>	<b>469</b>	<b>14.14</b>	<b>281</b>	<b>8.47</b>	<b>1189</b>	<b>35.83</b>	<b>678</b>	<b>20.43</b>	<b>354</b>	<b>10.67</b>	<b>3318</b>	<b>100.0</b>

Source: Field survey, July 2015.

Table 9. 8: Responses for employment status in selected districts across the three morphological zones of the city.



Source: Field survey, July 2015.

Figure 9. 17: Informal trading activities and pollution within setbacks along Housing Estate Oke-Ila Road in the city.

On the other hand, more of the respondents in the PREs were engaged in formal employment at 34.18%, while the number of those with formal jobs dropped to 23.77 % in the COAs, and 12.69 % in the NDAs. A cross tabulation of educational attainment and employment status established that most educated civil servants reside in the PREs.

The 14.14% unemployment rate in the study area is generally low as most people are engaged in formal or informal employment. Students constituted about one-tenth of the respondents, while 8.47% were retired. Findings show that in the quest to fill the gap of employment and argument the family economy and livelihood, the people take to casual trading activities. The implication is that unregulated income generating activities as survival strategies require operational bases that are often located with impunity on any available space especially within setbacks and open spaces with associated effects on orderliness, cleanliness and greenery in the city environment (Figure 9.17).

### **Income group**

Six income groups ranging from monthly earnings of less than ₦50,000.00, to the highest of ₦250,000.00 and above were adopted to measure the respondents' income level. The findings

show that, across the study area, 1,590 respondents (59.95%) earned less than =N=50,000.00 per month. In terms of the morphological zones, this group was in the majority in the COAs (64.09%) and the NDAs (66.98%), while it constituted only 28.19% in the PREs. In the latter, 48.53% of the respondents earned =N=50,000.00 to =N=100,000.00 per month, the highest in the study area, while the corresponding figures for the COAs and NDAs are 26.54% and 20.83%, respectively (see Table 9.9). Furthermore, 41 respondents in the PREs, which translates to 10.05% in this zone, earn =N=100,000.00 to =N=150,000.00 per month compared to 6.79% and 5.18% in the COAs and NDAs, respectively. In like manner, 24 respondents (5.88%) in the PREs earned =N=150,000.00 to =N=200,000.00 per month, with 3.38% and 1.34%, respectively in the NDAs and COAs. In the income bracket =N=200,000.00 to =N=250,000.00, the PREs recorded a 7.35% response rate against 3.30% in the NDAs and 1.24% in the COAs. In the NDAs 0.47% of the respondents in the zone or 0.23% overall, fell within the highest income bracket of =N=250,000.00 and above.

Income group (N)	Less than 50,000	% within zone	50001 to 100,000	% within zone	100,001 to 150,000	% within zone	150,001 to 200,000	% within zone	200,001 to 250,000	% within zone	Above 250,000	% within zone	Total	% of Total
COAs	623	64.09	358	26.54	66	6.79	13	1.34	12	1.24	-	-	792	38.70
NDAs	852	66.98	265	20.83	66	5.18	43	3.38	42	3.30	6	0.47	1272	47.01
PREs	115	28.19	198	48.53	41	10.05	24	5.88	30	7.35	-	-	408	14.29
<b>Total</b>	<b>1590</b>	<b>59.95</b>	<b>721</b>	<b>27.19</b>	<b>173</b>	<b>6.52</b>	<b>80</b>	<b>3.02</b>	<b>84</b>	<b>3.17</b>	<b>6</b>	<b>0.23</b>	<b>3318</b>	<b>100.0</b>

Source: Field survey, July 2015.

Table 9. 9: Income class of respondents in selected districts across the three morphological zones of the city.

This shows that there are pockets of high financial standing in areas where people earn relatively low incomes. The results show that respondents in the PREs earn the highest incomes and that incomes are low in the NDAs, and even lower in the COAs. A cross tabulation of educational background and income class revealed that respondents with no formal education and those with primary education, mainly residing in the COAs, were those in the lowest income category. The converse was true as respondents with tertiary education dominated the PREs where those within the highest income resided. This suggests that a higher level of education is a prerequisite for improved income and financial empowerment.

### 9.3.3 Setbacks and open space characteristics, and pattern of encroachment in the study area

In order to determine the state of open spaces and greenery in the capital city, the avenues from which these spaces are derived were surveyed in relation to the existing land use and development, and measured in accordance with reviewed national and state statutory provisions on setbacks and open spaces provision, ownership and maintenance. Hence, the particular use of land or a building was examined; the data is presented in Table 9.10 below. The majority of the buildings are used for residential purposes in the core areas and planned estates where the response rates were 53.92% and 56.87%, respectively. The frequency of response for residential use in the NDAs is 9.17%, while commercial and mixed uses dominate the zone with 35% and 37.14% response rates, respectively.

Commercial and mixed uses flourish in the COAs, with the former at 18.08%, and the latter at 24.67%. Mixed use is also prominent in the NDAs with a frequency of 24.67% and in the PREs with 22.83%. The findings show that after residential use, commercial use plays a major part in mixed land use, which accounts for an overall percentage of 28.36%. When this trend is considered together with commercial use, the overall percentage is 20.95%. This suggests that commercialization is competing with and gradually displacing residential use in the capital city. This is obvious along the major streets, especially in the core and new development areas such as Ajilosun, Ereguru, Ijigbo, Irona, Idolofin, Odo-Ado, Orereowu and Okeyinmi where the frontage of buildings and every available space around including setbacks and airspaces abutting roads, and even sidewalks and roadways, are used for informal trading activities (see Figures 9.18, 9.19, 9.20 and 9.21).

Type of land/bldg. use	Residential	% within zone	Commercial	% within zone	Religious	% within zone	Industrial	% within zone	Institutional	% within zone	Recreational	% within zone	Mixed	% within zone	Total	% Total
COAs	695	53.92	233	18.08	36	2.79	-	-	7	0.54	-	-	318	24.67	<b>1289</b>	<b>49.54</b>
NDAs	77	9.17	294	35.00	66	7.86	30	3.57	36	4.29	25	2.98	312	37.14	<b>840</b>	<b>32.28</b>
PREs	269	56.87	318	3.81	13	2.75	6	1.27	25	5.29	34	7.19	108	22.83	<b>473</b>	<b>18.18</b>
<b>Total</b>	<b>1041</b>	<b>40.01</b>	<b>545</b>	<b>20.95</b>	<b>115</b>	<b>4.42</b>	<b>36</b>	<b>1.38</b>	<b>68</b>	<b>2.61</b>	<b>59</b>	<b>2.27</b>	<b>738</b>	<b>28.36</b>	<b>2602</b>	<b>100.0</b>

Source: Field survey, July 2015.

Table 9. 10: Type of land/building use in selected districts across the three morphological zones of the city.



Source: Field survey, July 2015.

Figure 9. 18: Informal commercial use thrives along setbacks to roadway at Ijigbo Street in the city.



Source: Field survey, July 2015.

Figure 9. 19: At Ajilosun Street in the new development area of the city, building frontage, setbacks and even the roadway is commonly used for commercial purposes



Source: Field survey, July 2015.

Figure 9. 19: Commercialisation of building frontage, setbacks as well as the roadway at Okeyimi Street in the new development area is common sight throughout the capital city.



Source: Field survey, July 2015.

Figure 9. 20: Commercialisation of building frontage, setbacks as well as sidewalk and the roadway at Orereowu Street in the new development area is common sight throughout the capital city.

Religious use of buildings constitutes 4.42% in the study area, translating to 2.79% in the COAs, 2.75% in the PREs, and 7.86% in the NDAs. Except in a few cases like the First Baptist Church, Ogbon Oba in Figure 9.22, most of the buildings or spaces used for religious activities, especially churches, were converted from residential use. The study also found that industrial use, in the formal sense, does not exist in the COAs; there was no response for this type of use in the zone. Table 9.10 shows that industrial use is also scarce in the NDAs (3.57%) and PREs (1.27%), making up a paltry total of 1.24% and confirming that Ekiti State is dominated by the civil service with no established industrial base to provide employment opportunities. Many citizens therefore rely on informal activities to survive.



Source: Field survey, July 2015.

Figure 9. 21: Newly renovated First Baptist Church, Ogbon Oba in the core area where informal commercial activities thrive along the fence, setbacks, sidewalks and the road surface.

There are few buildings for institutional use in the study area, recording only 0.5% in the core area zone, and 4.29% and 5.29%, respectively in the NDAs and PREs, an overall percentage of 2.61%. This implies that public land use is grossly inadequate, eroding the sense of place and

community belonging. Furthermore, there is an acute shortage of recreational use in the urban landscape as examined in the spatial structure of the city in item 9.3.1. In the COAs, none of the respondents cited this land use, while such responses constituted only 2.98% in the NDAs and 7.19% in the PREs. The overall percentage of 2.27% in the study area suggests a deficiency of functional recreational open spaces and green facilities in the capital city. This reduces the availability of recreational opportunities, while reducing aesthetic and environmental quality and depriving the state capital of the status of a great place.

### Period of building construction

The age of buildings in the study area was measured within the last seven decades using the period before 1960 as the starting point, and proceeding at ten year intervals to 2010 to the present time. The results presented in Table 9.11 cover a total of 3,318 houses. Buildings predating independence constitute 12.62% in the core areas, while 8.91% fall into the same category in the NDAs and 2.11% in the planned estates. Expressed as a percentage of the total number of buildings, these figures translate to 4.88% in the COAs, 4.19% in the NDAs and 0.30% in the PREs. This boils down to a total of 311 buildings, equating to 9.37% in the study area in existence since the colonial era. The study thus established that the much larger old town

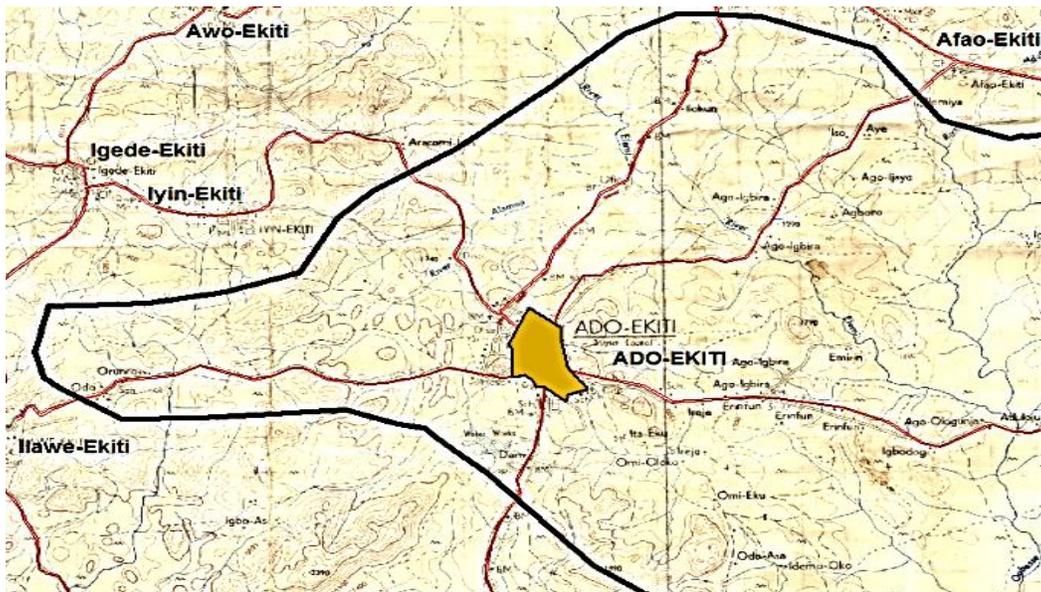
Period of building constructn	Before 1960	% within zone	1960 to 1969	% within zone	1970 to 1979	% within zone	1980 to 1989	% within zone	1990 to 1999	% within zone	2000 to 2009	% within zone	2010 to date	% within zone	Total	% Total
COAs	162	12.62	223	17.37	227	17.68	306	23.83	203	15.81	133	10.36	30	2.34	1284	38.70
NDAs	139	8.91	162	10.37	245	15.70	300	19.23	222	14.23	317	20.32	175	11.22	1560	47.01
PREs	10	2.11	-	-	25	5.27	137	28.90	109	23.00	162	34.18	31	6.54	474	14.29
<b>Total</b>	<b>311</b>	<b>9.37</b>	<b>385</b>	<b>11.60</b>	<b>497</b>	<b>14.98</b>	<b>743</b>	<b>22.39</b>	<b>534</b>	<b>16.09</b>	<b>612</b>	<b>18.45</b>	<b>236</b>	<b>7.11</b>	<b>3318</b>	<b>100.0</b>

Source: Field survey, July 2015.

Table 9. 11: Response frequency on period of building construction in the three morphological zones of the study area.

was expanding into the new development areas in the outer ring, while a few European quarters were built at *Oke Bareke* (literarily meaning Barracks Hill), as the hilly and segregated GRA where the colonial masters resided. The spatial extent of Ado-Ekiti during the pre-independence era is shown in Figure 9.23.

The study revealed that during the post-independence era from 1960 to 1969, more buildings were added to the urban structure. Despite the political turbulence that culminated in civil war in 1967, 223 houses representing 17.37% were built in the COAs, while 162 houses constituting 10.37% contributed to expansion in the NDAs. It is noteworthy that not a single house was constructed in the GRA. This is not unconnected to the instability prevalent in the wake of governance fraught with coups, assassinations, countercoups, insecurity, wars and rumours of war. However, the total of 385 houses built during the decade, representing 11.60 % of all houses



Source: Department of Survey and Geo-informatics, Federal Polytechnic, Ado-Ekiti, 2015.

Figure 9. 22: The spatial extent of Ado-Ekiti in 1956, signaling the imminence of uncontrolled urban expansion in all directions into outlying regions.

in the study area, surpassed the number built during the colonial period. The findings also show that the period from 1970 to 1979 witnessed a remarkable increase, with the total number of buildings constructed in all the districts adding up to 497, representing 14.98% in the study area. While 227 (17.68%) houses were constructed in the COAs, 245 (15.70%) sprang up in the NDAs, and only 25 (5.27%) were added in the PREs. The general increase in housing construction is an indication of a more stable socio-political climate that culminated in transition to civil rule, which portends future expansion.

The 1980s stand out as the decade with the highest building operations; 743 houses representing 22.39% of all houses in the study area were built during this time, the highest number ever. Houses erected in the COAs during the period under review increased to 306 or 23.83%, the highest in the zone, while 300 houses representing 19.23% were developed in the NDAs. In the PREs, the establishment of the State Housing Estate led to the construction of 137 houses constituting 28.90% of the housing stock. The nascent democratic government, which adopted housing provision as its slogan, coupled with increased earnings from crude oil sales, propelled this construction boom that impacted the city landscape. However, construction activities declined during 1990-1999. The number of houses built in the COAs fell to 203, translating to 15.81% in the zone. Likewise, only 222 houses (14.23%) were constructed in the NDAs and 109 or 23.00% in the PREs. The total number of buildings constructed in all three zones plunged from 743 (22.39 %) in the 1980s to 534 or 16.09% of all houses in the study area. This was due to the fact that the oil boom of the 1970s and 1980s was plagued by misappropriation, mismanagement and corruption, which forced the economy into a recession that affected all facets of life, including the construction industry. Consequently, the government struggled to achieve the goal of providing “housing for all by the year 2000”.

By the turn of the century, things were looking up a bit in the realm of housing construction in the study area. The number of houses built in the first decade of the new millennium increased marginally to 612, that is, 18.45% of houses in the study area. This was the result of more houses springing up in the PREs, especially in the GRA, to the tune of 162 houses corresponding to 34.18% - the highest ever in the zone and the entire study area. Similarly, the number of houses erected in the NDAs increased to 317 or 20.32%. However, the number of houses built in the COAs dropped further to 133 or 10.36% of the total number of houses in the study area. During the closing period in the assessment, from 2010 to the present, the least number of houses were constructed in the study area, totaling 236 and equating to 7.11%. The figures for the core area, hitherto at low ebb, slipped further to 30 houses at 2.34%, while in the NDAs newly added buildings dropped to 175, or 11.22%. The decline was most dramatic in the PREs where the number of new houses built plummeted from 612 (18.45%) in the previous decade to 30 or a mere 6.54%. The lack of housing construction in recent times is the result of the global economic

meltdown, dwindling oil revenue and a drastic reduction in funds accruing to state governments from the federation account. These issues of economy and housing construction have direct bearing on the manner and control of land use, adherence to setback regulations, provision of open spaces in the required standard, and the general outlook of the city environment.

Different periods of building construction were examined with a view to juxtaposing building operations in the study area with statutory enactments in relation to setbacks, air space and open space provision. This provided a yardstick to measure compliance with these regulations, and in accordance with the aim of the study, to determine the extent of encroachment on setbacks and open spaces to justify their reclamation for greening, socio-economic integration and placemaking in the state capital.

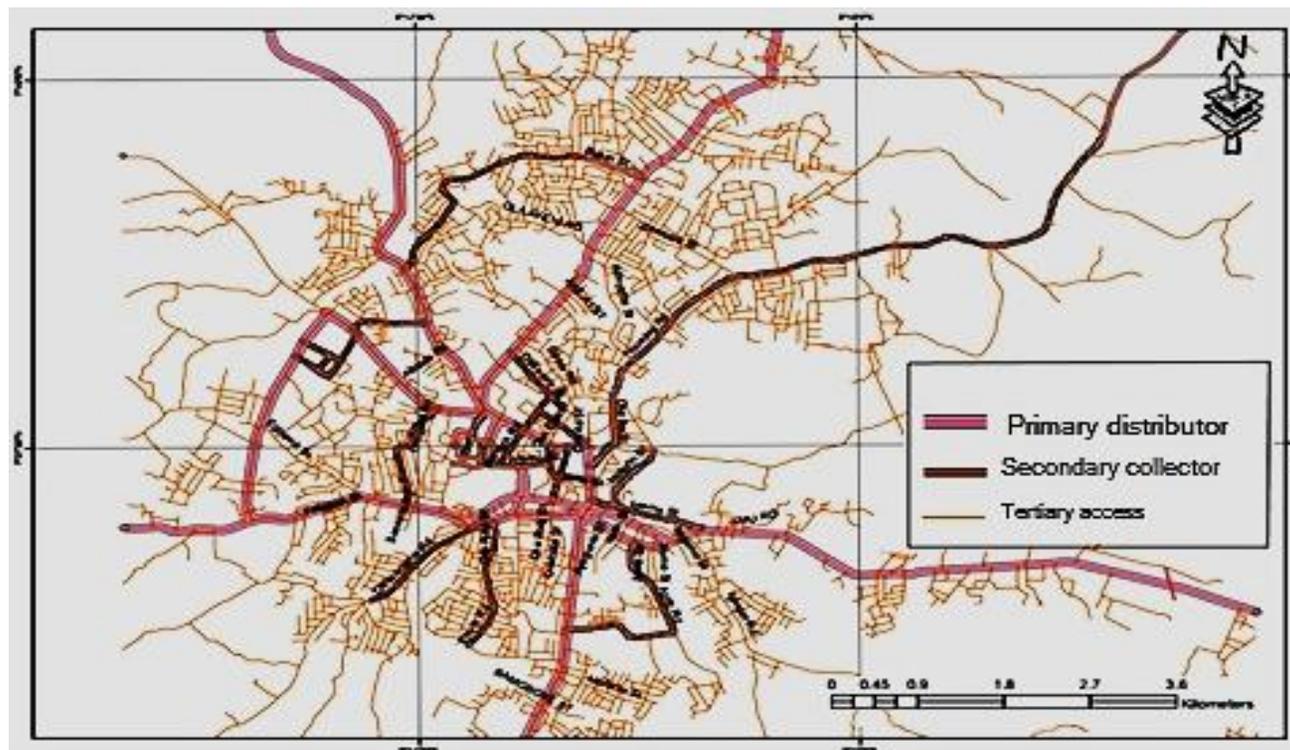
### **Road category of building location**

The study examined the category of road on which buildings are located in the study area. Three categories of road were identified: primary/distributor, secondary/collector, and tertiary/access as illustrated in Figure 9.24. A total number of 3,311 houses were involved in the study. Table 9.12 shows that 851 buildings, 25.70% of the total number of houses in the study area, are located on primary distributors. This is broken down to 421 houses or 32.79 % on primary distributors in

<b>Category of road/Zone</b>	<b>Primary distributor</b>	<b>% within zone</b>	<b>Secondary collector</b>	<b>% within zone</b>	<b>Tertiary access</b>	<b>% within zone</b>	<b>Total</b>	<b>% of Total</b>
<b>COA</b>	421	32.79	245	19.08	618	48.13	<b>1284</b>	<b>38.78</b>
<b>NDA</b>	300	19.32	257	16.55	996	64.13	<b>1553</b>	<b>46.90</b>
<b>PRE</b>	130	27.43	133	28.06	211	44.51	<b>474</b>	<b>14.36</b>
<b>Total</b>	<b>851</b>	<b>25.70</b>	<b>635</b>	<b>19.18</b>	<b>1825</b>	<b>55.12</b>	<b>3311</b>	<b>100</b>

Source: Field survey, July 2015.

Table 9. 12: Distribution frequency of building locations along three categories of road identified in the study area.



Source: Drawn by the Researcher based on field survey 2015.

Figure 9. 23: The three categories of road on which buildings are located in Ado-Ekiti.



Source: Field survey, July 2015.

Figure 9. 24: Dualised roadways at Igbehin Street is a primary distributor offering prime location for buildings and businesses in the core/old areas of Ado-Ekiti.



Source: Field survey, July 2015.

Figure 9. 25: Houses abutting dual carriageway at Ajilosun Street, a typical primary distributor in the new development areas of Ado-Ekiti.



Source: Field survey, July 2015.

Figure 9. 26: Mathew Street, a secondary collector along which buildings are located in the core/old areas of Ado-Ekiti.



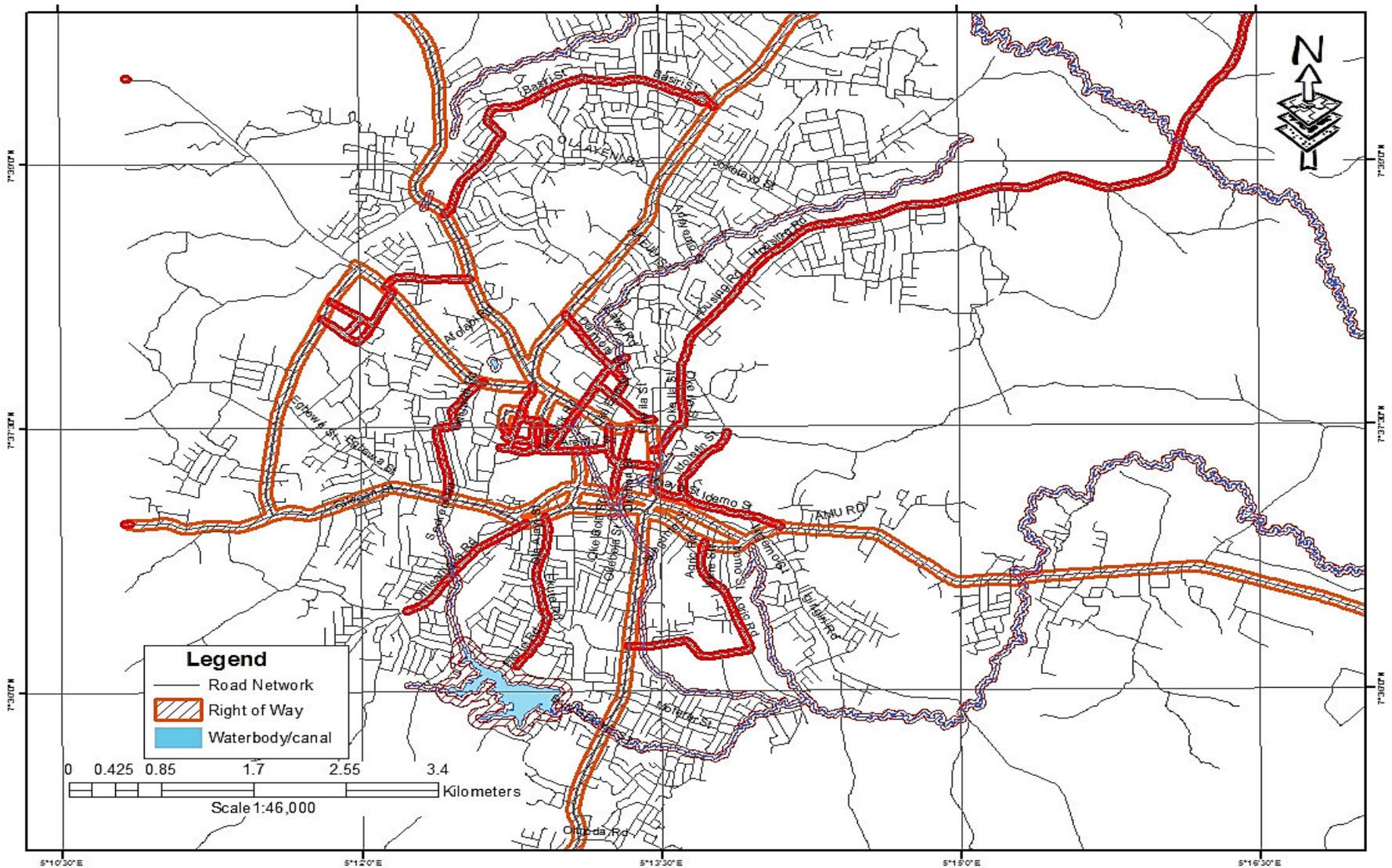
Source: Google Earth, 2016.

Figure 9. 27: Satellite imagery showing earth surface tertiary access roads providing ingress and egress for buildings in the State Residential Estate, Oke-Ila in the planned residential areas of Ado-Ekiti.

the COAs such as the dual roadways at Igbehin and Orereowu Streets and Ogbon Oba. It also includes 300 houses abutting dual carriageways such as Ajilosun and Irona/Surulere Streets in the NDAs and 130 situated on the two-lane Secretariat and State Roads in the PREs. Figures 9.25 and 9.26 illustrate some of these primary distributor dual carriageways at Igbehin Street in the core/old areas, and at Ajilosun Street in the new development areas of city.

The data also revealed that 635 buildings representing 19.18% in the study area were built along secondary/collector roads. In this category, 245 houses, or 19.08% occupy spaces along Ereguru and Idemo Streets in core areas, 257 buildings or 16.55% were positioned along roads such as Mathew Street (shown in Figure 9.27), Okebola Street and Ola Ajayi / Waterworks Road, and 133 structures (28.06%) were found on both sides of Deji Adegbite Street and 8<sup>th</sup> Avenue in the PREs. In terms of tertiary/access roads, the majority of houses numbering 1,825 and constituting 55.12% in the study area were sited on this class of road. The breakdown is 618 houses (48.13%) occupying spaces along access roads such as Idofin Street and Ogbon Ado in the COAs; 996 houses, or 64.13% situated on Eribi Street and Oremeta, among others, in the NDAs, and 211 on tertiary roads such as Onigari Street and 7<sup>th</sup> Avenue, an important component of the access road network in State Housing Estate in the PREs (see Figure 9.28 above).

The identification of the category of road on which buildings are located was crucial as it is a prerequisite for the determination of the required setbacks for the development. Different classes of road vary in rights-of-way (ROW) (see Figure 9.29) and widths of carriageway, while setbacks, stipulated as 50.0 meters to Federal roads, 30.0 meters to State roads, and 4.5 meters to Local roads in Section 34, subsection (a) of the Ekiti State Urban and Regional Planning and Development Law No. 3 of 2011 (EKSG, 2011), are often measured from the building line to the center of the road. The setbacks and ROW are supposed to be kept free of certain forms of development or any encumbrances, and maintained green. It was therefore necessary to identify the category of road on which a particular building is located in order to determine the spatial extent of its setback, and provide a means to determine compliance with development control statutes, or establish cases of contravention to justify reclamation and greening of such spaces in the city.



Source: Drawn by the Researcher based on field survey 2015.

Figure 9. 28: Rights-of-way (ROW) along classes of Federal and State roads, within which setbacks are accommodated and expected to be maintained as green space.

Preliminary observation reveals that a large number of these buildings do not meet the standard required for setbacks, which was earlier substantiated on the availability of setbacks and air spaces in the city. Subsequent physical measurements of setbacks from roadways confirm this.

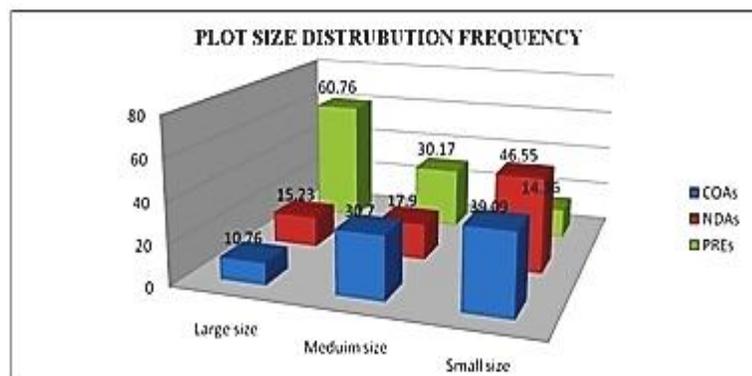
### Size of plot

The standardized plot sizes in consciously planned residential development were adopted to assess the actual size of the plots in the study area. Ideally, residential plots are regular shaped, and preferably rectangular rather than square. The ratio between the width and depth of a plot should not be less than 1:1.5, but should not exceed 1:3. Hence the three categories of plot sizes used were 18m x 36m high density, small plot; 24m x 36m medium density, medium plot; and 30m x 36m low density, large plot. The total number of buildings covered was 3,300. The data analysis presented in Table 9.13 speaks volumes. The frequency of plots in two of the three morphological zones is inversely proportional to the size, and the 30m x 36m large plot is the least available in the overall study area, numbering 661 and representing 20.03%.

Size of plot	30m x 36m Large size	% within zone	24m x 36m Medium size	% within zone	18m x 36m Small size	% within zone	Total	% of Total
COAs	139	10.76	396	30.70	755	58.54	1290	39.09
NDA's	234	15.23	275	17.90	1027	66.87	1536	46.55
PREs	288	60.76	143	30.17	43	9.07	474	14.36
<b>Total</b>	<b>661</b>	<b>20.03</b>	<b>814</b>	<b>24.67</b>	<b>1825</b>	<b>55.30</b>	<b>3300</b>	<b>100</b>

Source: Field survey, July 2015.

Table 9. 13: Frequency distribution of plots by size in the three morphological zones of Ado-Ekiti.



Source: Field survey, July 2015.

Figure 9. 29: Variation in the frequency of plot sizes is inversely proportional in two of the three morphological zones of Ado-Ekiti.

Only 139 of 1,290 buildings in the COAs, i.e., 10.76%, were built on large plots and 234 or 15.23% in the NDAs. It is highly significant that in the PREs, 288 buildings constituting 60.76%, the majority in the zone and the whole study area, were sited on large 30m x 36m low density plots (see the 3-D Figure 9.30). This is an indication of conscious planning and spaciousness in the PREs, which are grossly lacking in the two other zones.

Furthermore, approximately a quarter of plots (24.67%) in the entire study area, numbering 814 were 24m x 36m medium density, medium size plots. Viewed on zonal basis, the COAs recorded 396 (30.70%) and the PREs 143 (30.17%) medium sized plots, while the NDAs had just 275 (17.90%) of such plots. As for the frequency distribution of 18m x 36m high-density small plots, the NDAs led the way with 1,027 plots, or 66.87% in the zone and 31.12% (nearly a third) in the study area. This is closely followed by the COAs, with 775 small plots that equate to 58.54% in the zone and roughly one in four (1:4) plots in the study area. The planned estates only had 43 high density plots, or 9.07% - the lowest in the zone and the study area at large.

Thus, small plots far outnumbered medium and large ones in the core and new development areas, which together account for 85.64% of the study area, suggesting a lack of planning and high density of closely built up areas. The determination of plot size is also necessary for the evaluation of plot ratio development as required by law as an avenue to assess the level of compliance with or resistance to statutory regulations for setbacks and open spaces in the city.

### **Plot ratio development**

The percentage area of plot developed was examined taking cognizance of the extant planning regulations reviewed in Chapter 4, which stipulate 35-40% as maximum plot coverage. The following ranges were used: (i) less or equal to 40%, (ii) 41- 49%, (iii) 50 - 59% and (iv) 60% and above. Of 3,252 houses, only 323 or 9.94% occupy 40% or less of their plots. Furthermore, 161 of such houses (12.90%) are found in the COAs (4.95% of overall total) and 132, representing 8.63% in the NDAs (4.06% overall). The PREs account for the remaining 30 houses, constituting 6.33% in the zone and a mere 0.92% in the study area. Table 9.14 shows that that houses developed on 41- 49% of their plots have the following the intra-zonal plot ratio distribution: 186 (14.90%) in the COAs, 421 (27.52%) in the NDAs constituting the majority,

Plot ratio development	Less or equal to 40%	% within zone	41-49%	% within zone	50-59%	% within zone	60% and above	% within zone	Total	% of Total
<b>COAs</b>	161	12.90	186	14.90	271	21.71	630	50.48	<b>1248</b>	<b>38.38</b>
<b>NDAs</b>	132	8.63	421	27.52	581	37.97	396	25.88	<b>1530</b>	<b>47.04</b>
<b>PREs</b>	30	6.33	103	21.73	215	45.36	126	26.58	<b>474</b>	<b>14.58</b>
<b>Total</b>	<b>323</b>	<b>9.94</b>	<b>710</b>	<b>21.83</b>	<b>1067</b>	<b>32.81</b>	<b>1152</b>	<b>35.42</b>	<b>3252</b>	<b>100.00</b>

Source: Field survey, July 2015.

Table 9. 14: Frequency response on percentage plot ratio development across the three morphological zones of Ado-Ekiti.

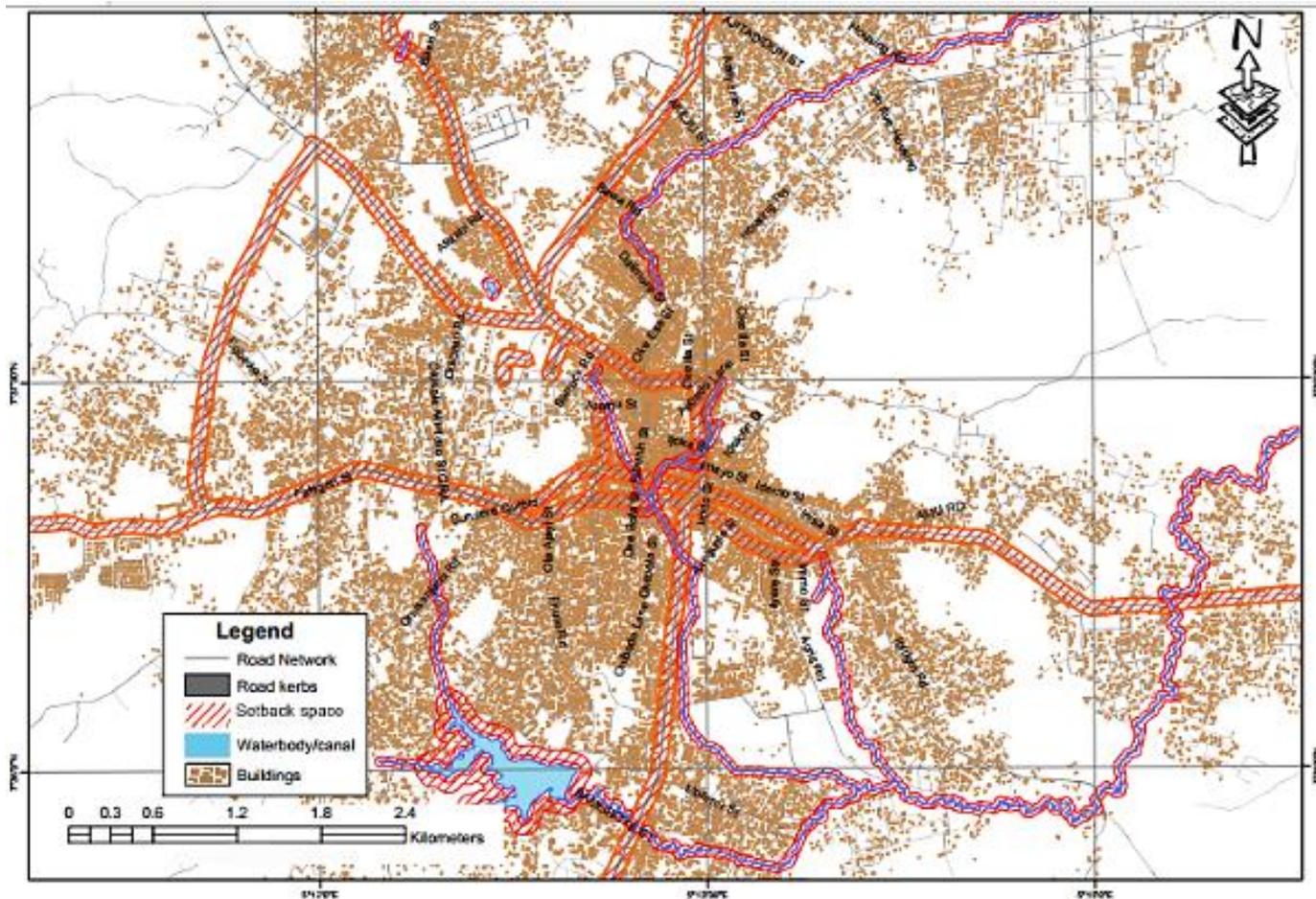


Source: Field survey, July 2015.

Figure 9. 30: Deficiency of spaces around buildings resulting to choky urban landscape is a manifestation of excessive plot usage in built-up core and new development areas of Ado-Ekiti.

and 103 (21.73%) in the PREs. These figures add up to 710 houses or 21.83% of the sample size. Furthermore, 271 (21.71%) of houses occupying between 50% and 59% of their plots were in the COAs, 581 (37.97%), the majority, in the NDAs, and 215 (45.36%) in the PREs, making a total of 1,067 houses, or 32.81% in the study area. The study found that houses with plot coverage of 60% and above were in the majority, at 1,152 or 35.42% of all buildings in the sample.

The implication of the data series presented in Table 9.14 is that only 323 houses (9.94%) met the legal requirement of not more than 40% plot coverage, while the vast majority of 2,929 buildings.



Drawn by the Researcher based on field survey 2015.

Figure 9. 31: Negation of space standards on plot coverage ratio culminates to open space shortage around dwellings and the massing of buildings, especially in the city's core and new development zones.

(90.06%) fall short of this requirement, representing a compliance rate of only 11.04% in the study area. It follows that the urban landscape is deprived of abundant open spaces around buildings, particularly in the core and new development zones resulting to the masses of buildings illustrated in Figures 9.31 and 9.32.

### **Possession of development permits**

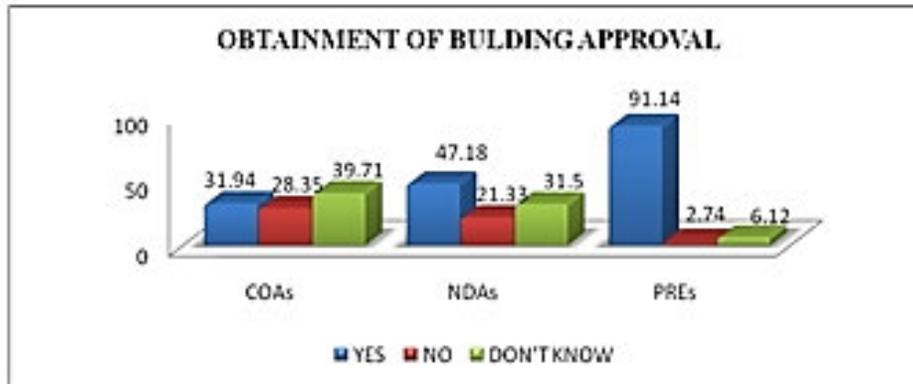
Section 34 subsection (a) of the Ekiti State Urban and Regional Planning and Development Law No. 3 of 2011 requires developers, whether private or government, to provide the minimum setbacks to water bodies, roadways, power lines, telecommunications facilities, utility lines, transportation routes, and mining pits. In order to ensure compliance with these regulations, section 27, subsection (1) of the Law makes it compulsory to obtain a development permit from the Planning Permit and Building Control Agency prior to the commencement of any physical development on any land in the State (Ekiti State Government of Nigeria, 2011). The National Building Code, subsection 11.6.1.4 on plans, specifications and special permits supports all existing national and state laws on the need for a developer to obtain development permits prior to the commencement of work on a site (Federal Republic of Nigeria, 2006).

In order to determine whether or not development permits were obtained for the construction of the buildings, the respondents were asked if they had approved building plans. Table 9.15 below shows that, of the 3,222 buildings surveyed 1,542 respondents representing 47.86% in the study area stated that they had approved plans. This is made up of 719 houses in the NDAs, the highest in the study area representing 47.18% in the zone, and 22.32 % overall; 391 (31.94%) in the COAs or just 12.14% overall and 432 in the PREs representing 91.14% in the zone, but only 13.41% in the study area. Furthermore, 685 houses, or 21.26% did not have approved building plans; 347 in the COAs (28.35% zonal, 10.77% overall); 325 in the NDAs (21.33% within the zone, 10.09% total); and 13 in the PREs (2.74% zone-specific, 0.40% overall). In addition, 995 respondents (30.85% of the total) claimed ignorance of the need for approved plans for their buildings, made up of 486 in the COAs (39.71% within the zone, and 15.08% of the whole study area); 480 in the NDAs (31.50% in the zone, 14.90% at large); and 29 in the PREs (6.12% zonal, 0.90% overall).

Development permit obtainment	Yes	% within zone	No	% within zone	Don't know	% within zone	Total	% of Total
<b>COAs</b>	391	31.94	347	28.35	486	39.71	<b>1224</b>	<b>37.99</b>
<b>NDA</b> s	719	47.18	325	21.33	480	31.50	<b>1524</b>	<b>47.30</b>
<b>PRE</b> s	432	91.14	13	2.74	29	6.12	<b>474</b>	<b>14.71</b>
<b>Total</b>	<b>1542</b>	<b>47.86</b>	<b>685</b>	<b>21.26</b>	<b>995</b>	<b>30.88</b>	<b>3222</b>	<b>100.00</b>

Source: Field survey, July 2015.

Table 9. 15: Availability of approved building plans for houses in the three zones of the city.



Source: Field survey, July 2015.

Figure 9. 32: Majority of houses especially in the core and new development zones of Ado-Ekiti were constructed without valid planning permits.



Source: Field survey, July 2015.

Figure 9. 33: Inadequate setbacks and air spaces, and substandard maximum plot coverage culminate to formless and choky development typical of core and new development areas of Ado-Ekiti.

This implies that less than half (1,542, i.e., 47.86%) of houses examined had planning permission from the appropriate quarters, while a significant number (685 or 21.26%) did not bother to obtain permits. More worrisome is the startling revelation that about a third (995 or 30.85%) of the respondents was not aware that approved building plans were required. The cumulative percentage of 52.11% for those without approved plans and those unaware of the need for such suggests that the bulk of the houses in the sample were constructed without planning approval (see Figure 9.33). This violates the planning laws, by-laws, regulations and building codes highlighted in Chapter 4, which make it compulsory to seek and obtain a development permit from the planning authority with jurisdiction before embarking on any building or rebuilding operation. It is this scenario that led to the uncontrolled mass of buildings that compromises adequate provision of setbacks and air spaces, and results in reduced open spaces for landscaping, negatively impacting the city landscape and environment as depicted in Figure 9.34 above.

### **Availability of setbacks**

The existing state of setbacks in respect of individual buildings in the selected districts was examined through physical measurement by trained field assistants (see Figure 9.35). Four types



Source: Field survey, July 2015.

Figure 9. 34: Field assistants taking physical measurement of setbacks to houses at Inisa Street in the core/old areas of Ado-Ekiti.

of setbacks identified in the literature were examined for each building in the sample: front setback, left side air space, right side air space, and rear air space. The assessment of setbacks and air spaces was based on the statutory minimum requirements of 4.5m and 3m, respectively as stipulated in the Building and Sub-division Regulations, OD.S.L.N. No. 14 of 1984 operational in Ekiti State, and the Ekiti State Urban and Regional Planning and Development Law No.3 of 2011. The data series generated from the study are presented as follow.

### **Front setbacks to building lines**

The results show that 287 houses have no front setbacks at all, constitute 8.96% of the total sample of 3,202. This category of houses that is built on the edges of roadways or drainage channels without any front setbacks or open spaces (depicted in Figure 9.35) was found in the core/old and new development areas - more frequent in the former (14.15%) than in the latter (7.57%) - but not in the planned estates. Secondly, 1,336 houses, or 41.71% in the whole study



Source: Field survey, July 2015.

Figure 9. 35: Houses built on roadway and drainage channel edges without front setbacks in Idolofin Street, typically in the core/old and new development areas of Ekiti State capital.

area had between 0.1m and 4.49m front setbacks (see the 4<sup>th</sup> and 5<sup>th</sup> columns in Table 9.16). This category of houses with limited and sub-standard open frontages made up 27.64% in the PREs while constituting 54.95% in the COAs and 35.39% in the NDAs. Cumulatively, houses without front setbacks and those with between 0.1m to 4.49m (less than 4.50m) open frontage constitute

<b>Zone/Front Setbacks (m)</b>	<b>None</b>	<b>% within zone</b>	<b>0.1-4.49m</b>	<b>% within zone</b>	<b>4.5 - 6.00m</b>	<b>% within zone</b>	<b>6.1 - 8.99m</b>	<b>% within zone</b>	<b>9.0m and above</b>	<b>% within zone</b>	<b>Total</b>	<b>%</b>
<b>COAs</b>	173	14.15	672	54.95	324	26.49	41	3.35	13	1.06	<b>1223</b>	<b>38.88</b>
<b>NDAs</b>	144	7.57	533	35.39	445	29.55	270	17.93	144	9.56	<b>1506</b>	<b>46.36</b>
<b>PREs</b>	-	-	131	27.64	210	44.30	84	17.72	49	10.34	<b>474</b>	<b>14.80</b>
<b>Total</b>	<b>287</b>	<b>8.96</b>	<b>1336</b>	<b>41.71</b>	<b>979</b>	<b>30.57</b>	<b>395</b>	<b>12.34</b>	<b>206</b>	<b>6.43</b>	<b>3203</b>	<b>100.00</b>

Source: Field survey, July 2015.

Table 9. 16: Front setbacks of buildings (meters) in the three morphological zones of Ado-Ekiti.

50.67% in the entire study area, but account for a significant 69.10% (more than two-thirds) in core areas, 42.96% (nearly half) in NDAs and just 27.64% (slightly above a quarter) in planned estates.

In contrast, 44.30% of the houses in the PREs have front setbacks of 4.5m to 6.00m, the highest response frequency in the study area, almost twice as much as in the COAs (26.49%), and exceeding the NDAs (29.55%) by a wide margin. As shown in Table 9.16, this group of buildings makes up 30.57% of the total sample. Furthermore, the number of houses with front setbacks ranging between 6.10m and 8.99m was only 12.34% of the sample size. Only 3.35% of these are in the COAs and 17.93% in the NDAs, marginally higher than the 17.72% in the PREs. Houses with ample front setbacks equaling or exceeding 9m are uncommon at 6.43% of the total sample; very scarce in the core areas (1.06%), and dotting the new development and planned estates at 9.56% and 10.34%, respectively (see Figure 9.36).



Source: Field survey, July 2015.

Figure 9. 36: House with ample setback in State Housing Estate, Oke-Ila, exemplifying the planned residential estates in the State capital.

### **Left side air space to buildings**

Table 9.17 shows the measurements of the setbacks providing air space at the left side of selected buildings examined earlier. It shows a similar trend to the front setbacks. Houses with no left side air space at all (357) represent 11.12% of the sample, with the largest number (191, 14.88%) in the COAs, followed by 162 (10.89%) in the NDAs, while the PREs had very few (4, 0.84%). Furthermore, the largest percentage of houses (852, 68.27%) with left side setbacks of between 0.1m to 2.99m is located within the COAs, with a relatively high percentage (691; 46.44%) in the NDAs, while the PREs had 187 (39.45%). This cohort of houses is in the majority (1,730; 53.89%) in the study area. Cumulatively, houses with the least left side air space of zero to 2.99m were in the majority (2,087) equating to 65.01% of all the sampled buildings. The majority of houses with 3.0m to 5.99m left side air space are in the PREs (41.98%), with 33.87% in the NDAs and only 14.42% in the COAs (see Figure 9.38). This group of 883 houses represents 27.51% of the study area. Furthermore, the PREs maintain the lead (16.67%) in

Zone/ left side air space (m)	None	% within zone	0.1- 2.99m	% within zone	3.0 - 5.99m	% within zone	6.0 - 8.99m	% within zone	9.0m and above	% within zone	Total	% of Total
COAs	191	14.88	852	68.27	180	14.42	18	1.44	7	0.56	1248	38.88
NDAAs	162	10.89	691	46.44	504	33.87	89	5.98	42	2.82	1488	46.36
PREs	4	0.84	187	39.45	199	41.98	79	16.67	5	1.05	474	14.77
<b>Total</b>	<b>357</b>	<b>11.12</b>	<b>1730</b>	<b>53.89</b>	<b>883</b>	<b>27.51</b>	<b>186</b>	<b>5.79</b>	<b>54</b>	<b>1.68</b>	<b>3210</b>	<b>100.00</b>

Source: Field survey, July 2015.

Table 9. 17: Left side air space of buildings (meters) in the three morphological zones of Ado-Ekiti.

houses with left air space measuring between 6.0m and 8.99m, while the NDAAs account for a much lower share (5.98%) and an insignificant number is located in COAs (1.44%). These houses add up to 186, just 5.79% of the sample. A low 54 houses have left side air spaces of 9m or more, constituting 1.68% of the sample. In the NDAAs, 2.82% of houses fall into this category, with 1.05% in the PRES and hardly any (0.56%) in the COAs.



Source: Field survey, July 2015.

Figure 9. 37: Building with adequate left side airspace along Ajilosun Street in the new development area of the city.

### Right side air space to buildings

The setback measurements taken at the right side of selected buildings in the study area are shown below. It was found that 366 buildings or 11.38% of the sample have no air space on the right hand side. The majority are in the COAs with 213 houses, or 17.23% within the zone. There are 144 such houses (9.56%) in the NDAs, while the PREs had only nine, an indication that the availability of these house types is skewed towards the core areas of the city. Table 9.18 shows that 1,820 (56.59%) houses have right side air spaces within the range of 0.1m to 2.99m.

Zone/ left side air space (m)	None	% within zone	0.1-2.99m	% within zone	3.0 - 5.99m	% within zone	6.0 - 8.99m	% within zone	9.0m and above	% within zone	Total	% of Total
<b>COAs</b>	213	17.23	807	65.29	204	16.50	8	0.64	4	0.32	<b>1236</b>	<b>38.43</b>
<b>NDAs</b>	144	9.56	769	51.06	450	29.88	125	8.30	18	1.20	<b>1506</b>	<b>46.83</b>
<b>PREs</b>	9	1.90	244	51.48	174	36.71	47	9.92	-	-	<b>474</b>	<b>14.74</b>
<b>Total</b>	<b>366</b>	<b>11.38</b>	<b>1820</b>	<b>56.59</b>	<b>828</b>	<b>25.75</b>	<b>180</b>	<b>5.60</b>	<b>22</b>	<b>0.68</b>	<b>3216</b>	<b>100.00</b>

Source: Field survey, July 2015.

Table 9. 18: Right side air space of buildings across the three morphological zones of Ado-Ekiti.



Source: Field survey, July 2015.

Figure 9. 38: House with less than 3 meters right air spaces are ubiquitous in the State capital.

The majority (807) are located in the core areas, where they constitute 65.29%, while they occur in nearly equal proportions of 51.06% and 51.48% in the NDAs and the PREs, respectively. Thus, houses without air spaces at the right side and those with up to 2.99m (i.e., less than 3 meters) represent 67.97% (more than two-thirds) of houses in the delineated study area (see Figure 9.39).

About a quarter of the sampled buildings (828; 25.75%) were bounded to the right with air space measuring 3.0m to 5.99m. The PREs have the highest frequency (36.71%) of such buildings, while the numbers declined to 29.88% in the NDAs, and 16.50% in the COAs. The findings further revealed that the prevalence of buildings with wider right side setbacks spanning 6.0m to 8.99m followed the same pattern of distribution; 9.92% in the PREs; 8.30% in the NDAs; and 0.64% in the COAs. These make up 5.60% of the total sample. Finally, some 22 buildings making up a small percentage (0.68%) have ample and unlimited air space measuring 9.0m or more in the core (four houses) and new development areas (18) with zonal percentages of 0.32% and 1.32%, respectively. No such buildings exist in the planned estates, a slight departure from the trend.

### Rear setbacks to buildings

The data on the fourth type of setbacks to ensure adequate air space at the back of buildings in the study area is presented Table 9.19. In contrast to the earlier findings, the NDAs have the majority of buildings (215; 14.71%) without any space backing them, slightly more than the COAs (173; 13.93%). However, in line with the previous results, only a small number of houses (11; 2.38%) lack rear setbacks in the PREs. The total is 399 (12.60%).

Zone/ rear air space(m)	None	%	0.1- 2.99m	% within zone	3.0 - 5.99m	% within zone	6.0 - 8.99m	% within zone	9.0m and above	%	Total	%
COAs	173	13.93	816	65.70	217	17.47	26	2.09	10	0.81	<b>1242</b>	<b>39.23</b>
NDAs	215	14.71	617	42.20	348	23.80	233	15.94	49	3.35	<b>1462</b>	<b>46.18</b>
PREs	11	2.38	228	49.35	187	40.48	36	7.79	-	-	<b>462</b>	<b>14.59</b>
<b>Total</b>	<b>399</b>	<b>12.60</b>	<b>1661</b>	<b>52.46</b>	<b>752</b>	<b>23.75</b>	<b>295</b>	<b>9.32</b>	<b>59</b>	<b>1.86</b>	<b>3166</b>	<b>100.00</b>

Source: Field survey, July 2015.

Table 9. 19: Rear setbacks of buildings in the three morphological zones of Ado-Ekiti.

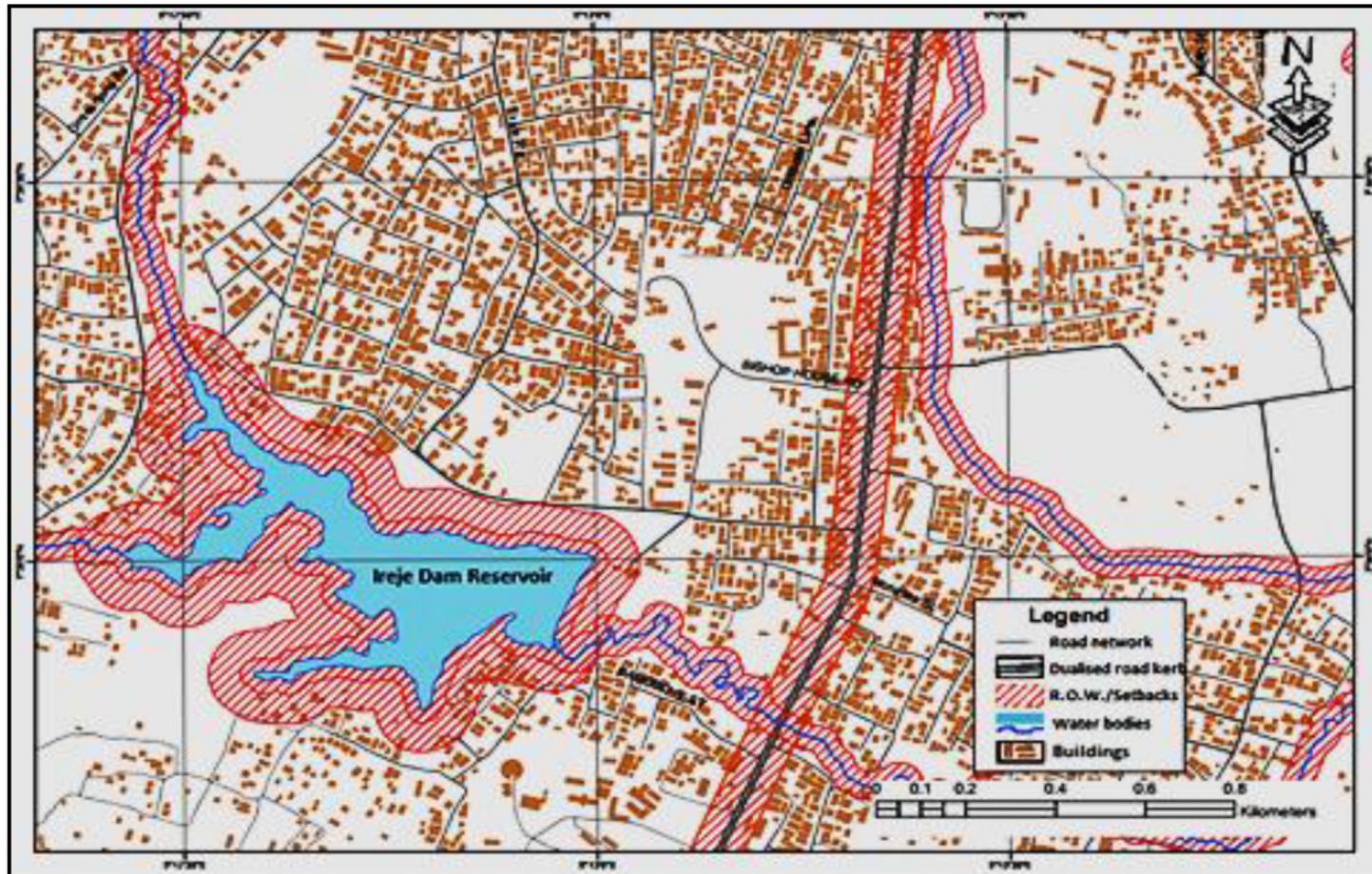
The core areas once again dominated when it came to houses with rear setbacks measurements falling between 0.1m and 2.99m in the study area with 816 (65.70%). However, the percentage of such buildings in the PREs (49.35%) surpassed those in the NDAs (42.20%). These houses account for 52.56% of the total at 1,661 in the entire study area. Cumulatively, houses with no rear setbacks (399, 12.60%) offering no air space at the back and those with 0.1m to 2.99m, but

not more than 3 meters (1,661;52.56%) constitute 65.16%, the vast majority (almost two-thirds) of the sample.

The previously established pattern continued, with the PREs having the highest percentage (40.48%) of buildings with rear setbacks measuring between 3.0m and 5.99m, with the NDAs at 23.80% and 17.47% in the COAs. Table 9.19 shows that 752 houses (23.75%) fall within this category. The number of structures with backyard spaces between 6.0m and 8.99m dropped sharply to 295 or 9.32% in the study area. With a total of 233 (15.94%), the NDAs have the largest proportion of this type of house, with 36 (7.79%) and there are 26 (2.09%) in the PREs and COAs, respectively. Only 59 houses (1.86%) with extensive setbacks behind them were identified, 49 (3.35%) in the NDAs and the remaining 10 (0.81%) in the COAs, with none in the PREs.

In summary, about two-thirds of the surveyed houses have front setbacks of less than 4.5m and less than 3m left side, right side, and rear air spaces. These houses constitute more than two-thirds in the core areas, nearly half in the NDAs, and about a quarter in planned estates. On the other hand, buildings with the required minimum front setbacks of 4.50m or more, and left side, right side, and rear air spaces measuring 3m and above constituted a third and a quarter of sample, respectively. The majority of these houses are in the PREs. Such buildings are rare in the core/old areas. The exceptions were houses with very large left side, right side, and rear setbacks of 9m or more, which were virtually non-existent in the planned estates with standardized plot sizes.

The implication is that a large percentage of houses, especially in the core and new development areas of the study area as revealed in Figure 9.40, do not have adequate setbacks from the roads abutting them and are separated by insufficient air spaces from adjoining buildings. This has led to a mass of buildings with insufficient ventilation and light (see Figures 9.31 and 9.32). The environment in the residential districts is thus formlessness, imbalanced, risky and aesthetically bankrupt as there is drastically reduced or no open space for landscaping.



Drawn by the Researcher based on field survey 2015

Figure 9. 39: Buildings lack sufficient air spaces from adjoining ones, and adequate setbacks from roads and water edges, particularly in the core and new development areas of the city.

### Location of building along hydrological features

The relative location of buildings was examined to identify those sited along drainage channels and water bodies in the three morphological zones of the study area. This enabled the identification of the availability of any of these hydrological features and the adequacy of setbacks to them in their respective localities. Table 9.20 presents the data on drainage channels, rivers and streams. The overwhelming majority of 2,562 houses covering 94.05% of the study area are located along a drainage channel. More specifically, 834 buildings representing 87.42% in the COAs, 1,320 houses constituting a significant 96.92% in the NDAs, and practically all (100%) of the 408 houses in the PREs lie alongside drainage channels. This implies that the majority of streets in the city have drains for storm water management as illustrated in Figures 9.41 and 9.42.

Zone/Water body	Drainage Channel	% within zone	Stream	% within zone	River	% within zone	None	% within zone	Total	% of total
<b>COAs</b>	834	87.42	19	1.99	6	0.63	95	9.96	<b>954</b>	<b>35.02</b>
<b>NDAs</b>	1320	96.92	24	1.76	13	0.95	5	0.37	<b>1362</b>	<b>50.00</b>
<b>PREs</b>	408	100.00	-	-	-	-	-	-	<b>408</b>	<b>14.98</b>
<b>Total</b>	<b>2562</b>	<b>94.05</b>	<b>43</b>	<b>1.58</b>	<b>19</b>	<b>0.70</b>	<b>100</b>	<b>3.67</b>	<b>2724</b>	<b>100.00</b>

Source: Field survey, July 2015.

Table 9. 20: Location of buildings along hydrological features in the morphological zones of Ado-Ekiti.

The findings further revealed that a few buildings (43) accounting for 1.58% of the sample are found along streams, while much fewer (19, 0.70%) are sited along rivers. These houses only exist in the contiguous core and new development areas, and more in the latter than the former. The same applies to buildings with none of these hydrological features within their localities (100; 3.67% overall), most of which are situated in the COAs (95; 9.96%) compared with five (0.37%) in the NDAs. Such buildings do not exist in the PREs, implying that there no significant rivers and streams in these zones of the capital city. It also suggests that as a result of conscious planning, all the streets in PREs are furnished with drainage channels.



Source: Field survey, July 2015.

Figure 9. 40: Covered drainage channel along Ajilosun Street in the new development area of Ado-Ekiti.



Source: Field survey, July 2015.

Figure 9. 41: Continuation of covered drainage channel to the open type along Ajilosun Street, Ado-Ekiti.

Furthermore, the fact that only a few houses are located along a river or stream in the core and new development areas is an indication that channelization projects have transformed the natural courses of water bodies such as the Ajilosun and Ureje Rivers, and streams like the Agere, Ijiku, Isewese and Omisanjana that traverse the inner city and peri-urban residential precincts.

### **Building setback to drainage/water body**

Section 34 subsection (a) of the Ekiti State Urban and Regional Planning and Development Law, No. 3 of 2011 shown in Table 4.2 in section 4.2.1 of this thesis requires minimum setbacks of 30 meters to streams, 60 meters to rivers and 100 meters to the edge of dams and large water bodies. It is implied that the minimum setback of 4.5 meters required to the edge of the road is also applicable to roadside drainage channels. Thus, building setbacks to drainages and water bodies are as presented in Table 9.21. The study found that more than half the houses (1571; 50.68%) are located between zero and 4.49 meters from drainage channels and water bodies, which falls short of legal requirements.

<b>Zone/ Setback to drainage water body</b>	<b>0 - 4.49</b>	<b>4.5 - 9.9</b>	<b>10 - 14.9</b>	<b>15 - 19.9</b>	<b>20 -24.9</b>	<b>25 -29.9</b>	<b>30 and above</b>	<b>Total</b>
<b>COAs</b>	797	246	84	49	24	-	-	<b>1200</b>
<b>% within zone</b>	66.41	20.50	7.00	4.10	2.00	-	-	<b>38.68</b>
<b>NDA</b> s	546	402	221	78	97	36	54	<b>1434</b>
<b>% within zone</b>	38.08	28.03	15.41	5.44	6.76	2.51	3.77	<b>46.23</b>
<b>PRE</b> s	228	102	43	54	23	6	12	<b>468</b>
<b>% within zone</b>	48.71	21.79	9.19	11.54	4.91	1.28	2.56	<b>15.09</b>
<b>Total</b>	<b>1571</b>	<b>750</b>	<b>348</b>	<b>181</b>	<b>144</b>	<b>42</b>	<b>66</b>	<b>3102</b>
<b>% of total</b>	<b>50.68</b>	<b>24.18</b>	<b>11.22</b>	<b>5.83</b>	<b>4.64</b>	<b>1.35</b>	<b>2.13</b>	<b>100.00</b>

Source: Field survey, July 2015.

Table 9. 21: Relative building setbacks measured to drainages and water bodies in the morphological zones of Ado-Ekiti.

Furthermore, most of these houses are located in the core old areas (797; 66.41%), while NDAs and planned estates accounted for 546 (38.08%) and 228 (48.71%), respectively, corroborating the earlier finding in this study that houses with front setbacks within this range account for more than two-thirds of core areas.

Houses with setbacks measuring between 4.50 and 9.9m to drainage channels and water bodies constitute 24.18% of the total study area, but are more frequent (402) at 28.03% in the NDAs, while the COAs had 246 (20.52%) and the PREs 102 (21.79%). Furthermore, only 348 houses were built some 10m to 14.9m from hydrological features, representing 11.22%, with 221 (15.41%) in the PREs, 84 (7.0%) in the COAs and 43 (9.19%) in the PREs. In terms of other categories of setbacks from buildings to drainage and water bodies, the figures are: 15 to 19.9 meters: 181 houses (5.83% of the total); 20 to 24.9 meters: 144 houses equaling 4.64% of the total; 25 to 29.9 meters: 42 houses translating to a mere 1.35% overall; and 30 meters and above: 66 houses representing just 2.13% of the sample.

The above analysis shows that more than 50% of the houses in the study area are located less than 4.5 meters from drainage channels and water bodies. Moreover, cumulatively, 47.22% of the buildings have 4.5 to 29.9 meter setbacks, while only 2.13% were found to have up to, or in excess of 30 meter setbacks. This suggests widespread non-compliance with statutory guidelines.

Many houses were observed precariously perched along the edges of line drains, streams and rivers (see Figures 9.40, 9.43 and 9.44). This is especially true of the unplanned older core and new development areas. Apart from the dangers inherent in this situation such as the erosion of foundations at Inisa Street shown in Figure 9.43, it also causes water pollution and environmental degradation; it was observed that solid, liquid and human waste was discharged into the channels and water bodies on a daily basis (Figures 9.44, 9.45 and 9.46). This blocks the free flow of water, reducing channel capacity and causing flooding whenever it rained.

The study identified the pressure of urbanisation manifesting the lack of structural plans, disrespect for the rule of law, and ineffective development control as the main causes of indiscriminate construction of buildings beyond acceptable setback distance along drainage channels and water edges in the city. This is typified by informal amorphous development on government acquired land along Ireje River basin within a period of ten years, from 2005 to 2015.



Source: Field survey, July 2015.

Figure 9. 42: Houses built at zero meter on the edge of drainage channel, some (as seen in the foreground) with eroded foundation disintegrating at Inisa Street, in the core old morphological zone of Ado-Ekiti.



Source: Field survey, July 2015.

Figure 9. 43: Buildings located less than four meters from Ajilosun River channel in the new development area of Ado-Ekiti. The hanging debris indicates higher water level and flooding profile during rainfall.



Source: Field survey, July 2015.

Figure 9. 44: The wanton use of open drainage channels that are often close to buildings for solid, liquid and human wastes disposal as observed at Atikankan in the core/old area of the city constitutes source of water pollution, air pollution, environmental degradation and health hazard.



Source: Field survey, July 2015.

Figure 9. 45: The indiscriminate dumping of solid, liquid and human wastes into Ajilosun River channel in the new development area of the city has blocked fluvial movement, induced siltation that reduces channel capacity and causes flooding; while also constituting sources of water pollution and environmental degradation.



Source: Google Maps, 2016.

Figure 9. 46: Satellite image of Ado-Ekiti showing open green areas and their encroachment on government acquisition along Ireje River basin in 2005.



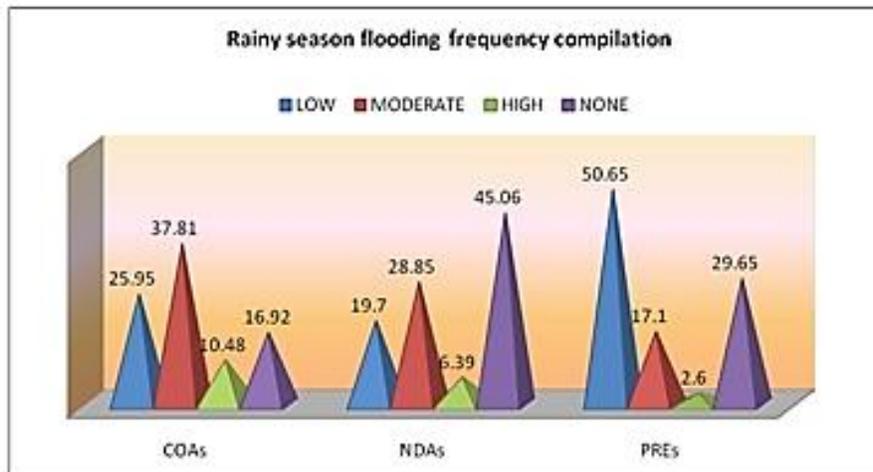
Source: Google Maps, 2016.

Figure 9. 47: Satellite image of Ado-Ekiti revealing the subtraction and illegal occupation of green areas by amorously expanding residential districts with scanty open spaces along Ireje River basin in 2015.

As captured by satellite imageries in Figures 9.47 and 9.48, it is revealed that the city expands uncontrollably along water edges and drainage channels into the surrounding region with attendant vegetal destruction. Findings show that there is no conscious or commensurate replacement, which is manifested in the gross inadequacy or total lack of open green spaces in the city. Furthermore, encroachment on spaces along these open channels and water edges compromises orderliness, access, aesthetics, urban comfort and recreational opportunities.

### **Flooding profile in the morphological zones of the city**

Information was also gathered on the frequency of flooding in the selected districts during the rainy season. Figure 9.49 shows the responses from 3,186 respondents. Seven hundred and forty-six stated that there is little flooding in their districts, with the highest response rate of 50.65% in the planned estates, followed by 25.95% in the core areas, and 19.70% in the new development zone. In the COAs, 456 respondents (37.81%) reported moderate flooding during the wet season compared with 438 (28.85%) in the NDAs and 79 (17.10%) in the PREs.



Source: Field survey, July 2015.

Figure 9. 48: Rainy season flooding in the three morphological zones of Ado-Ekiti.

Two hundred and thirty-five respondents in the COAs (19.48% within the zone) stated that there was a high incidence of flooding in their district, with only 97 (6.39%) agreeing in the NDAs and 12 (2.60%) in the PREs. The majority (1,025 respondents representing 32.17% of the sample) claimed to never have experienced flash flooding when it rained, with most of these respondents (684; 45.06%) located in the NDAs. In the PREs, 137 respondents, corresponding to 29.65% in

the zone, agreed with this statement, while the COAs had the lowest response rate of 16.92% (204 respondents).

This suggests that the hilly terrain of the capital city is naturally well drained especially in the extensive NDAs. However, it was observed that the old core area is badly affected by flooding due to high density development. This not only increases the area of roofed spaces and impermeable surfaces that increase run-offs, but also means that the houses are located close to drainage channels and water bodies, which are, in turn, misused and poorly managed as earlier established. The PREs have the lowest flooding profile in the city, which is attributed to their well-planned layout and relatively low density. It is therefore imperative to imbibe the culture of planning and regulation of development to restore orderliness and inject liveability into the city.

### **Nearness of building or development to power transmission lines**

The respondents were asked how close their house was to low tension, medium tension and high tension power lines. A fourth option was no power transmission line within the vicinity of the building. Table 9.22 shows that the majority of the 3,158 buildings involved in the study (1,620 or 51.33% of the total sample across the three morphological zones) are located near low tension power lines (see Figures 9. 50 and 9. 51). These included 588 houses (47.57%) in the COAs, 749 (51.38%) in the NDAs, and 283 (60.47%) in the PREs. Furthermore, 365 buildings, translating to 11.57% of the total sample, are located near medium tension power lines. These buildings were located only in the COAs and the NDAs (see Figures 9.48 and 9.49 and 9.50), with many more in the latter (381; 21.90%) and relatively few (47; 3.80%) in the former.

<b>Area</b>	<b>Low tension power line</b>	<b>%</b>	<b>Medium tension power line</b>	<b>%</b>	<b>High tension power line</b>	<b>%</b>	<b>None</b>	<b>%</b>	<b>Total</b>	<b>%</b>
<b>COAs</b>	588	47.57	47	3.80	19	1.54	582	47.09	<b>1236</b>	<b>39.14</b>
<b>NDAs</b>	749	51.38	318	21.90	90	6.19	295	20.32	<b>1452</b>	<b>46.98</b>
<b>PREs</b>	283	60.47	-	-	-	-	187	39.95	<b>470</b>	<b>14.88</b>
<b>Total</b>	<b>1620</b>	<b>51.33</b>	<b>365</b>	<b>11.57</b>	<b>109</b>	<b>3.39</b>	<b>1064</b>	<b>33.71</b>	<b>3158</b>	<b>100.00</b>

Source: Field survey, July 2015.

Table 9. 22: Categories of power transmission line near the location of buildings in residential districts across the three morphological zones of Ekiti State capital.



Source: Field survey, July 2015.

Figure 9. 49: Most houses are located near low tension power line as seen in Mathew Street in the new development area, typifying similar trend in other morphological zones of Ado-Ekiti.



Source: Field survey, July 2015.

Figure 9. 50: Houses located very close to low tension power line with service cable dangling overhead at Iyere Street in the core area, as common occurrence in other morphological zones of the city.

The study found that 109 buildings (a mere 3.39% of the sample) were constructed near high tension power lines, with a few in the COAs (19; 1.54%) and the remainder in the NDAs (90; 6.19%).

Research results presented in Table 9.22 above make it emphatically explicit that majority of the buildings, with total count of 1,620 boiling down to 51.33% of total samples across the three morphological zones of the city, are located near low tension power lines as depicted in Figures 9.51 and 9.52. These spread out to 588 houses (47.57%) in the COAs, 749 buildings (51.38%) in the NDAs, and 283 structures (60.47%) in the PREs. The second category is the medium tension power line, around which the study revealed 365 buildings, translating to 11.57% of total samples, are located.

It was equally discovered that these buildings were exclusively situated in the COAs and the NDAs as seen in Figures 9.50 and 9.51 and 9.52, but much more in the latter (381; 21.90%) than the relatively few (47; 3.80%) in the former. By the same token, the study showed that the 109 buildings, being just 3.39% of the whole, erected around high tension power lines- the third category- were limited to the few existing in the COAs (19; 1.54%) and those occurring in the NDAs (90; 6.19%).

On the other hand, 1,064 respondents, representing the second highest percentage of 33.71% in the study area, have no electricity distribution network in their areas. The bulk of these houses amounting to 582 (47.09%) are in the COAs, with 295 (20.32%) in the NDAs and 187 (39.95% in the zone) in the PREs.

These findings show that low-tension power lines which provide electricity and street lighting are the most common in the study area. Medium tension power lines that are the supply link to step-down transformers which supply electricity to the low tension power lines are less common (see Figure 54). Similarly, high tension power lines, shown in Figure 9.55, are scarce as they carry high kilowatts of electricity to destinations beyond the study area.



Source: Field survey, July 2015.

Figure 9. 51: Medium tension power line, often running on top of service poles parallel to low tension power line below it, as seen along Ijigbo-Ajilosun axis.



Source: Field survey, July 2015.

Figure 9. 52: Medium and low tension power lines on service poles along Ijigbo Street in the core area, replicated in other morphological zones of the capital city.

The fact that respondents in the PREs did not report any buildings close to medium and high tension power lines indicates that development control measures do not allow these types of power lines in residential areas. On the other hand, some respondents, particularly in the core and new development areas stated that there were no power lines, implying that they have limited access to electricity. They would use alternative means of power, many of which have economic implications and adverse environmental impacts deriving from vibration, noise and air pollution.

### **Setback of buildings to identified nearby power transmission lines**

Section 34 subsection (a) of the Ekiti State Urban and Regional Planning and Development Law, No. 3 of 2011 (see Table 4.2 in section 4.2.1) provides that the minimum setbacks to low tension, medium tension and high tension power lines are 4.5 meters, 15 meters, and 45 meters, respectively.

The measurement of setbacks to the power lines, involving some 2718 buildings in the sample, took cognizance of this statutory provision. Table 9.23 below shows that 1,001 houses (36.83%) have between zero and 4.49 meters as setbacks to domestic power lines (see Figure 9.51). In Iyere Street, houses are located so close to low tension power lines that service cables dangle over them. The COAs were accountable for the largest number of the buildings (473; 44.29%) in this category, with 342 in the NDAs (26.51%). However, curiously, 51.67%, or 186 of the houses in the PREs also fall into this category.

Furthermore, 642 buildings having setbacks to power lines of 4.5 to 9.99 meters (23.62%), distributed within the zones as follows: COAs - 240, 22.10%; NDAs - 335, 25.97%; and PREs - 67, 18.61%. These are shown in Figures 9.52 and 9.53.



Source: Field survey, July 2015.

Figure 9.53: Series of medium tension power lines supply link transmitting power to step-down transformers and national grid from power generating station at Agric Olope area of the city.



Source: Field survey, July 2015.

Figure 9. 54: High tension power line, the highest order of transmission lines (in the background), are scarcely found in the city.



Source: Field survey, July 2015.

Figure 9. 55: Medium tension power line servicing transformer in Housing Estate, Oke-Ila in the city.



Source: Field survey, July 2015.

Figure 9. 56: Houses observing minimum setback to domestic power lines Housing Estate, Oke-Ila.

Moreover, of the 259 buildings (9.53% of the total) with setbacks to identified power transmission lines ranging between 10.00 and 14.99 meters, the largest number 174 (13.49%) are within the NDAs, with 61 (5.71 %) within the COAs and 24 (6.67%) in the PREs. Buildings with 15.00 to 29.99 meters setbacks, numbering 253 or 9.31% of the sample, were concentrated in the NDAs (199; 15.43%), with only 54 (5.07%) located in the COAs, while the PREs did not have any.

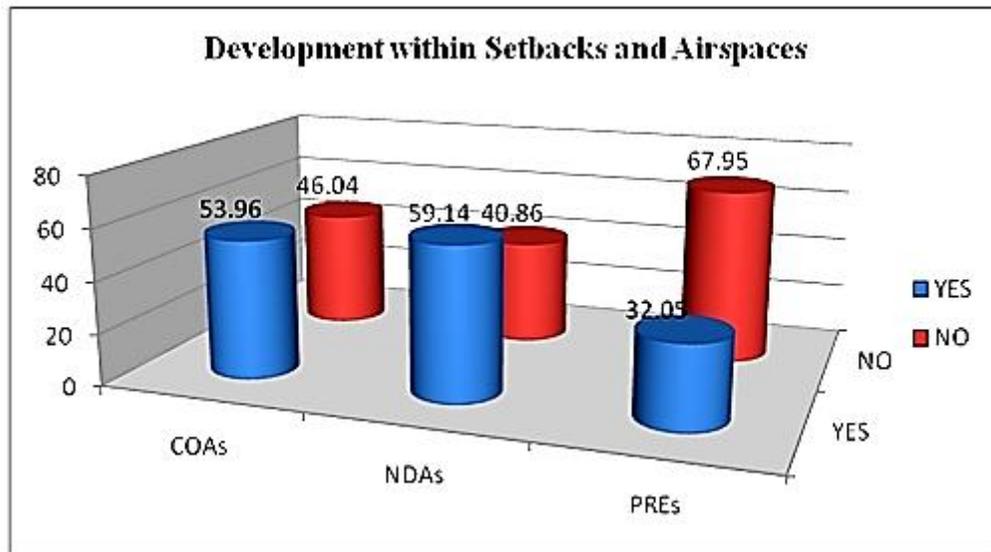
Building setback to power line	0 - 4.49	% within zone	4.5- 9.99	% within zone	10- 14.99	% within zone	15- 29.99	% within zone	30- 44.99	% within zone	45 and above	Total	Total	% of total
<b>COAs</b>	473	44.29	240	22.10	61	5.71	54	5.07	12	1.12	228	21.35	<b>1068</b>	<b>39.29</b>
<b>NDAs</b>	342	26.51	335	25.97	174	13.49	199	15.43	162	12.56	78	6.05	<b>1290</b>	<b>47.46</b>
<b>PREs</b>	186	51.67	67	18.61	24	6.67	-	-	11	3.06	72	20.00	<b>360</b>	<b>13.25</b>
<b>Total</b>	<b>1001</b>	<b>36.83</b>	<b>642</b>	<b>23.62</b>	<b>259</b>	<b>9.53</b>	<b>253</b>	<b>9.31</b>	<b>185</b>	<b>6.81</b>	<b>378</b>	<b>13.91</b>	<b>2718</b>	<b>100.00</b>

Source: Field survey, July 2015.

Table 9. 23: Building setbacks to identified power transmission lines in morphological zones of the city.

Of the 185 buildings (representing 6.81% of the sample) with setbacks of 30.00 to 44.99 meters to the nearest power transmission lines, the NDAs recorded the highest frequency (162; 12.56%), while the COAs and the PREs had 12 (1.12%) and 11 (3.06%), respectively. Three hundred and seventy-eight buildings, constituting 13.91% of the total sample were found to have setbacks to power lines of 45 meters or more. Of particular interest is the fact that, not only were the majority of these structures in the core areas (228; 21.35%), but the cross tabulation revealed that most were in Ereguru district with 222 buildings. The NDAs accounted for 78 (6.05%) and the PREs 72 (20.00%).

The results suggest that most of the buildings in the study area fall short of statutory requirements. Many houses were erected very close to power lines, while some buildings and informal businesses have power lines dangling overhead, posing threats to lives and property. If strictly observed, setbacks are sources of open space and green areas in the urban matrix. Contravention of the regulations deprives the city landscape of valuable open spaces and greenery.



Source: Field survey, July 2015.

Figure 9. 57: Development within setbacks and air spaces is mostly common in the NDAs than the COAs, and the least in the PREs of Ado-Ekiti.



Source: Field survey, July 2015.

Figure 9. 58: Development within setbacks: Shop recently constructed with metals on the setback to a one-story building at Imayo Street in Idofin District in the core old area of Ado-Ekiti.

### Development within setbacks in residential districts

The general non-compliance with statutory provisions on setbacks has been established. There was also a need to examine the utilization of the relatively few setbacks in the city. The majority of respondents (1,688 or 53.14% of the sample) confirmed that the setbacks to their buildings,

Zone/Development within setbacks	Yes	% within setback	No	% within setback	Total	% of Total
COAs	661	53.96	564	46.04	1225	38.57
NDA	877	59.14	606	40.86	1483	46.69
PREs	150	32.05	318	67.95	468	14.73
<b>Total</b>	<b>1688</b>	<b>53.14</b>	<b>1488</b>	<b>46.85</b>	<b>3176</b>	<b>100.00</b>

Source: Field survey, July 2015.

Table 9. 24: Development within setbacks and air spaces in residential districts across the three morphological zones of Ado-Ekiti.

whether to the road, drains or water bodies or power lines, as well as air spaces around the buildings, have been used for one form of development or another. As shown in Table 9.24, most of the developed setbacks and air spaces occur in the NDAs with 59.13%, with the COAs and the PREs accounting for 53.96% and 32.05%, respectively (see Figures 9.59, 9.60, 9.61 and 9.62). The remaining 46.85% (1,488) of the respondents claimed that their building setbacks and air spaces remain intact. Figure 9.58 shows that most of these undeveloped setbacks and air spaces (67.95%) are located in the NDAs, followed by the COAs (46.04%) and the PREs (40.86%).

Further investigation was undertaken to determine the nature of development on the open spaces (see Table 9.25). It was found that commercial use was the major activity (1,095 houses), representing 64.87% of the 1,688 affected buildings). This trend cuts across all the residential districts in the three morphological zones of the state capital, but is more pronounced in the NDAs (68.36%), followed closely by the COAs (62.28%), and the PREs (53.03%). Figure 9.63 illustrates the dominance of commercial activities within setbacks in the cityscape. In many cases, such activities extend to sidewalks and roadways as in Imayo Street in the core area (Figure 9.64). Residential use accounted for 17.00% of development in setbacks and air spaces, mostly in the core (23.40%) and new development areas (14.53%), while the planned estates are devoid of such development.



Source: Field survey, July 2015.

Figure 9. 59: Development within setbacks: Fence constructed on edge of drainage channel enclosing a setback, though marked for contravention but never demolished, at Kajola Street in new development area of Ado-Ekiti.



Source: Field survey, July 2015.

Figure 9. 60: Development within setbacks: makeshift shops built on setback space along Poly Road, Odo-Ado Street in the new development area of Ado-Ekiti.



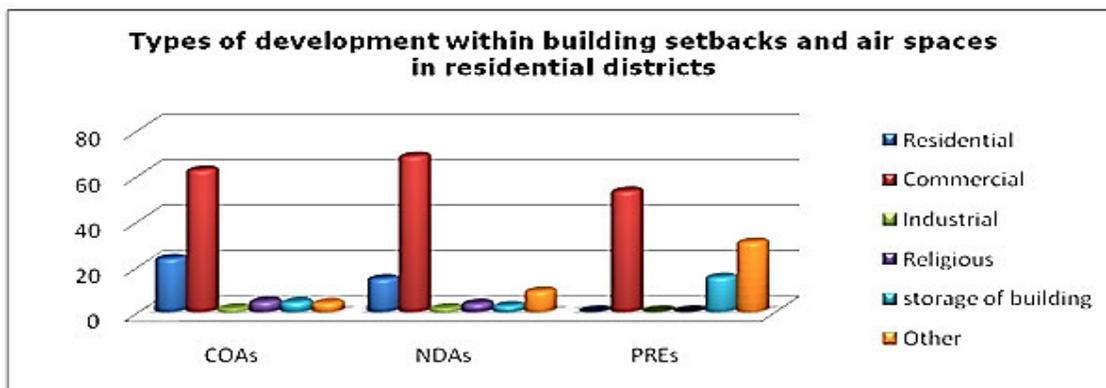
Source: Field survey, July 2015.

Figure 9. 61: Development within setbacks: Fence converted to shop, usurping the setback to the edge of drainage channel while neighbours on both sides maintained their setbacks undeveloped in State Housing Estate in the planned residential areas of Ado-Ekiti. Similar setback development into a row of shops is observable at the frontage of the duplex in the background.

Zone/Types of development	Residential	%	Commercial	%	Industrial	%	Religious	%	Storage of building materials	%	Others	%	Total	%
COAs	158	23.40	421	62.28	10	1.48	31	4.59	29	4.29	27	3.99	676	40.05
NDAAs	129	14.53	607	68.36	14	1.58	33	3.72	24	2.70	81	9.12	888	52.61
PREs	-	-	67	53.03	-	-	-	-	19	15.32	38	30.65	124	7.34
<b>TOTAL</b>	<b>287</b>	<b>17.00</b>	<b>1095</b>	<b>64.87</b>	<b>24</b>	<b>1.42</b>	<b>62</b>	<b>3.67</b>	<b>72</b>	<b>4.27</b>	<b>148</b>	<b>8.77</b>	<b>1688</b>	<b>100.00</b>

Source: Field survey, July 2015.

Table 9. 25: Types of development within building setbacks and air spaces in residential district across the morphological zones of the capital city.



Source: Field survey, July 2015.

Figure 9. 62: Commercial activities surpass other uses within setbacks and air spaces within residential districts in the three morphological zones of Ado-Ekiti.



Source: Field survey, July 2015.

Figure 9. 63: Extremity of commercial activities spilling from setbacks to annex the roadway at Imayo Street as it is often the case in all the three morphological zones of the state capital.



Source: Field survey, July 2015.

Figure 9. 64: A myriad of other uses and activities such as cooking, sign posting and advertisement clog setbacks and air spaces within residential districts in the three morphological zones of Ado-Ekiti.

Building setbacks and air spaces have been developed as religious and industrial uses in the COAs (3.67%) and NDAs (1.42%), but once again not in the PREs. Another use of building setbacks and air spaces that is common to all morphological zones of the city is for storage of construction materials. This was the case in 4.27% of the houses in the sample and is most prevalent in the PREs at 15.32% and less noticeable in the COAs (4.29%), and NDAs (2.70%). Other uses to which setbacks and air spaces around buildings have been put are parking for private and commercial vehicles; abandonment of broken down vehicles, machinery and junk; generator housing and uncovered generators; as work areas for artisans, roadside mechanics and vulcanizers; grinding and milling; and installation of signposts and advertisements. Such areas are also used for domestic activities like the stockpiling of fuel wood; water tanks and wells; cooking, bathing, urinating, and defecating; urinals for drinking and relaxation joints; play and relaxation areas; refuse heaps; and tombstones (see Figure 9.65). Such illegal developments were observed around 148 houses (8.77% of the sample), with 38 in the PREs (30.65%), 81 in the NDAs (9.12%) and 27 (3.99%) in the COAs (Table 9.27).

Thus, setbacks that are required by law to provide a safe distance from buildings to both sides of movement lines, power lines and water bodies; as well as air and light spaces have been subjected to makeshift development. Such spaces have been built up or used for informal commercial activities, not only in the core and new development areas but in the PREs. Indeed, the State Residential Estate situated in Oke-Ila recorded the highest incidence. This further clogs already high density residential spaces, inducing disorderliness that impacts the environment adversely.

### **Obtaining development permits for development within setbacks and air spaces in residential districts across the morphological zones of Ado-Ekiti**

Relevant sections of the Building and Sub-division Regulations of 1984 (that still guide development in Ekiti and Ondo States); the Nigerian Urban and Regional Planning Law, Decree No. 88 of 1992; the National Building Code, 2006 and the Ekiti State Urban and Regional Planning and Development Law, EK.S.L.N.No.3 of 2011 require developers to obtain planning permission before embarking on any form of development (see sections 6.4 and 6.7). The permit

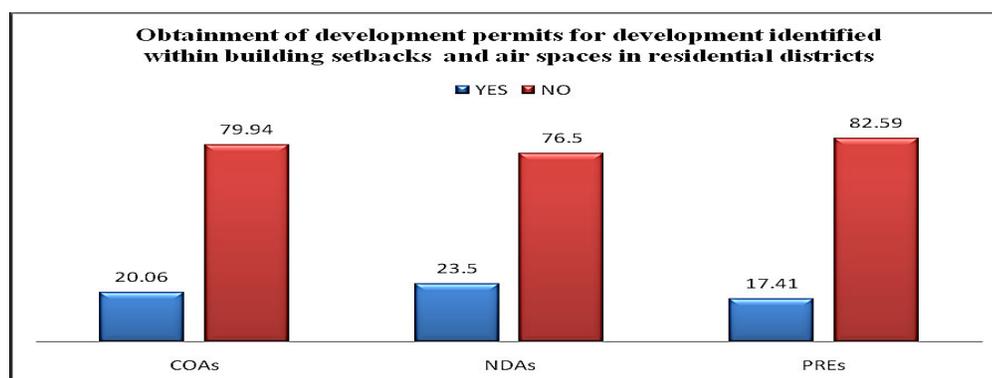
expires if development does not commence within two years of issue (ODSG, 1984; FGN, 1992; FGN, 2006; EKSG, 2011). Going by the above statutory stipulations therefore, were planning permits obtained for the development identified within the building setbacks and air spaces? Table 9.26 shows that development within the setbacks and open spaces around 1, 329 houses, representing a significant 78.73% of the sample, were built without planning permission. The PREs led the way, with 82.59% of the development on setbacks and air spaces surveyed within the zone (247 buildings) having been constructed without a permit, meaning that a paltry 43 (17.41%) are legal (Figure 9.66).

Zone/ Development permit obtainment	Yes	%	No	%	Total	%
COAs	132	20.06	526	79.94	658	38.98
NDA	184	23.50	599	76.50	783	46.39
PREs	43	17.41	204	82.59	247	14.63
<b>TOTAL</b>	<b>359</b>	<b>21.27</b>	<b>1329</b>	<b>78.73</b>	<b>1688</b>	<b>100.00</b>

Source: Field survey, July 2015.

Table 9. 26: Development permits obtained for development identified within building setbacks and air spaces in residential districts across the morphological zones of Ekiti State capital.

Similarly, 79.94% and 76.50% of development on setbacks and air spaces around houses were built without permission in the COAs and NDAs respectively. Developments on setbacks and air spaces were claimed to have been formally approved in 132 (20.06%) cases in the COAs, 184 (23.50%) in the NDAs and 43 (17.41%) in the PREs (see Table 9.26 and the Figure 9.66).



Source: Field survey, July 2015.

Figure 9. 65: The frequency of illegal development within setbacks and air spaces is relatively high in all the morphological zones, but surprisingly highest in the planned residential areas of Ekiti State capital.

This implies that, due to increasing demand for space, especially for informal commercial activities, citizens have defied development control laws and have developed seemingly available setbacks and air spaces. Some commercial activities spill over drainage channels onto the roadway. This wave of illegal development continues unabated, and has spread across the three zones of the city, eating up open spaces around buildings, roads, water bodies and power lines, and exacerbating amorphous expansion. The planned estates are worst hit, akin to illegal change of use, which is destroying the supposedly planned environment. Thus, laws and the development control agency charged with their enforcement are not having an impact on the city landscape and environment.

### **Treatment of undeveloped setbacks and air spaces in the morphological zones of the city**

It was found that in the case of 1,488 houses (46.85%), building setbacks and air spaces were not developed (Table 9.24 on page 312 refers). Further examination revealed, however, that these setbacks and air spaces, that were expected to be intact, had been subjected to some kind of treatment. The setbacks and air spaces within the premises of only 238 buildings (16.21% of those examined) are treated with green landscaping elements such as grass, shrubs and flowers. Most (131 or 60.93%) are located in the PREs as shown in Figure 9.67. The NDAs had 80 houses with landscaped setbacks (11.71% within the zone), while the COAs had the least at 27, a mere 4.74% in the zone. Moreover, setbacks to 232 buildings or 15.80% of the sample were covered with granite, made up of 114 (20.00%) in the COAs, and 107 (15.67%) in the NDAs (see Table 9.27).

Zone/Form of setback treatment	Planted with greens	% within the zone	Covered with granite chippings	% within the zone	Paved with concrete	% within the zone	Left bare	% within the zone	Over-grown with weeds	% within the zone	Used as refuse dump	% within the zone	Total	% of total
<b>COAs</b>	27	4.74	114	20.00	178	31.23	164	28.77	10	1.76	77	13.51	<b>570</b>	<b>38.83</b>
<b>NDAs</b>	80	11.71	107	15.67	231	33.82	181	26.50	50	7.32	34	4.98	<b>683</b>	<b>46.53</b>
<b>PREs</b>	131	60.93	11	5.11	50	23.26	13	6.05	10	4.65	-	-	<b>215</b>	<b>14.64</b>
<b>TOTAL</b>	<b>238</b>	<b>16.21</b>	<b>232</b>	<b>15.80</b>	<b>459</b>	<b>31.27</b>	<b>358</b>	<b>24.39</b>	<b>70</b>	<b>4.77</b>	<b>111</b>	<b>7.56</b>	<b>1468</b>	<b>100.00</b>

Source: Field survey, July 2015.

Table 9. 27: Treatment of setbacks and air spaces deemed ‘undeveloped’ in the three zones of the city.



Source: Field survey, July 2015.

Figure 9. 66: Building setbacks endowed with grass, shrubs and beautiful flowers along 7th and 9th Avenues, a common sight in the State Housing Estate, Oke-Ila in the planned residential zone of Ado-Ekiti.

Paving with concrete and interlocking tiles was the most common treatment of undeveloped setback and airspaces in two of the three morphological zones in the study area. This was made up of 459 houses (31.27% of the total sample), with 231 (33.82% of the sample in the zone) in the NDAs and 178 (31.23% in the zone) in the COAs. The PREs accounted for 50 (23.26% of the sample in the zone). Furthermore, nearly a quarter of houses investigated (358; 24.39%) left their setbacks bare and untreated. This included 164 houses constituting 28.77% of the sample in the COAs and 181 (26.50%) in the NDAs. Only 13 houses (6.05% of the sample in the zone) in the PREs had setbacks with bare surfaces.

Setbacks around 70 buildings (4.77% of the overall sample) were carelessly treated to the extent that they were overgrown with weeds. These bushy setbacks were found around 50 houses (7.32%) in the NDAs and 10 (1.76%) in the PREs. Some building setbacks were strewn with refuse. This included 111 houses (7.56% of the total sample), with the COAs leading the way with 77 houses (13.51% in the zone) and more than 34 houses (4.98%) in the NDAs. No littered setbacks were found in the PREs.

The data in Table 9.27 suggests that about one in six setbacks to buildings are properly treated with soft landscaping elements as required by law, while those covered with hard landscaping in the form of granite chips and concrete paving add up to 47.7% of the sample. If the setbacks left bare are added, the percentage of hard surface setbacks increases to 71.46% of the buildings investigated, while poorly maintained, filthy and unsightly setbacks account for 12.33%. This suggests that there is no formal landscaping design in some cases and poor maintenance in others.

Hard surface setbacks and airspaces lead to heat absorption, storage and eventual radiation that aggravate discomfort in a tropical climate (Figure 9.68). The scant usage of greenery worsens this situation and negatively impacts landscape quality and aesthetics in the city of Ado-Ekiti as shown in the figure below. This corroborates the findings of a recent study (Ojo-Fajuru and Adebayo, 2014b), which cited the widespread insufficiency of open spaces and greenery in Ado-Ekiti and Akure, the respective capital cities of Ekiti and Ondo States, negatively impacting place making in the state capitals.



Source: Field survey, July 2015.

Figure 9. 67: Hard surfacing of setbacks as seen along Ajilosun Street aggravates urban heat island and discomfort in of Ado-Ekiti.

### Form of undeveloped building setback spaces usage in the morphological zones of the city

Table 9.28 shows that the 781 respondents (53.20%) that claimed that their setbacks were not developed, have trading activities on these spaces, notably in the NDAs with the largest share of 415 houses (60.85% within the zone), outnumbering the 314 (56.27%) in the COAs. The 52 houses found in this category in the PREs make up 22.8% of the sample in the zone. The research also uncovered light industry located on the supposedly undeveloped setbacks of 98 houses, 46 (8.24% of which were in the COAs and 49 in the NDAs (7.18%). Only three houses (0.44%) with light industry were found on supposedly undeveloped setbacks in the PREs.

Furthermore, it was found that some of the setbacks purported to have not been developed are used to store building materials. Such usage was associated with a total of 60 houses in the sample, but only in the COAs (46; 8.24%) and NDAs (14; 2.05%) and none in the PREs. Another significant use is the parking of vehicles, which was observed around 176 houses amounting to 11.99% of the sample. The majority of the houses using undeveloped setbacks on their premises to park vehicles are located in the NDAs (104 houses representing 15.25% in the zone) while there were 40 (7.17% of the sample in the zone) in the COAs, with the remaining 32 buildings (14.04%) in the PREs.

Only 28 respondents (1.90% of the sample) reported farming on setbacks that they claimed were undeveloped. This occurred in 20 cases (0.44%) in the NDAs and 2.19% (5 houses) in the PREs. Horticultural gardens were observed in 108 houses (7.36% of the sample) on supposedly undeveloped setbacks. The planned estates had the highest frequency, with 61 houses (26.75% in the zone), while the COAs and NDAs had 17 (3.05%) and 30 (4.40%), respectively.

Zone/Set-back usage	Trading	% within the zone	Light industry	% within the zone	Building material storage	% within the zone	Parking	% within the zone	Farming	% within the zone	Horticulture	% within the zone	Others	% within the zone	Total	% of total
COAs	314	56.27	46	8.24	46	8.24	40	7.17	20	3.58	17	3.05	75	13.44	558	38.01
NDAs	415	60.85	49	7.18	14	2.05	104	15.25	3	0.44	30	4.40	67	9.82	682	46.46
PREs	52	22.81	3	0.44	-	-	32	14.04	5	2.19	61	26.75	75	32.90	228	15.53
<b>TOTAL</b>	<b>781</b>	<b>53.20</b>	<b>98</b>	<b>6.68</b>	<b>60</b>	<b>4.09</b>	<b>176</b>	<b>11.99</b>	<b>28</b>	<b>1.90</b>	<b>108</b>	<b>7.36</b>	<b>217</b>	<b>14.78</b>	<b>1468</b>	<b>100.00</b>

Source: Field survey, July, 2015.

Table 9. 28: Usage of setbacks and air spaces deemed 'undeveloped' in the city's morphological zones.

Various other uses were also observed at 75 houses in the COAs and the PREs (13.44% of the sample in the former and 32.90% in the latter). The comparable figures for the NDAs are 67 houses representing 9.82% in the zone. Altogether, other uses identified on building setbacks that respondents claimed were not developed covered 217 houses (14.78% of the sample).

These negate Section 91 of the Nigerian Urban and Regional Planning Law Decree of 1992 and sections 27 and 28 of the Ekiti State Urban and Regional Planning and Development Law, which control the development and use of land, including setbacks (FGN, 1992; EKSG, 2011). Only farming (identified on 1.90% the setbacks within the sample) and horticulture (7.36%) are permissible. This implies that 90.74% of the users are not complying with the law. In light of this, the study investigated if the use of building setbacks that were presumably vacant had the approval of the State Planning Permit and Building Control Agency as required by law.

### **Obtaining development permits for the usage of undeveloped building setbacks and airspaces in the morphological zones of Ado-Ekiti**

The findings reveal that 81.43% of the usage of setbacks (1,154 houses) was done without obtaining a permit (Table 9.29). This cuts across the three morphological zones, ranging from 77.37% in the PREs to 78.35% in the NDAs, and 79.26% in the COAs. Only 314 respondents (22.24% of sample) confirmed that they had obtained development permits for the usage of their building setbacks, which they earlier claimed to be unoccupied. This applied to 20.74% of the cases in the COAs, 21.65% in the NDAs, and 22.27% in the PREs.

<b>Permit obtainment for 'undeveloped' setback usage</b>	<b>Yes</b>	<b>%</b>	<b>No</b>	<b>%</b>	<b>Total</b>	<b>%</b>
<b>COAs</b>	118	20.74	451	79.26	<b>569</b>	<b>38.76</b>
<b>NDAs</b>	147	21.65	532	78.35	<b>679</b>	<b>46.25</b>
<b>PREs</b>	49	22.27	171	77.73	<b>220</b>	<b>14.99</b>
<b>TOTAL</b>	<b>314</b>	<b>22.24</b>	<b>1154</b>	<b>81.43</b>	<b>1468</b>	<b>100.00</b>

Source: Field survey, July 2015.

Table 9. 29: Development permits obtained for development identified within building setbacks.

This confirms the widespread tendency to physically develop or change the use of land and buildings without a permit. The reduction in open space green areas has devastating effects on

the aesthetics and environmental quality of the city, with implications for residents and visitors' health and recreational opportunities.

### **Availability of organized open spaces within the morphological zones of the city**

An earlier study on planning recreational open spaces in Ado-Ekiti, found that the city has facilities for both active and passive recreation but for indoor rather than outdoor facilities. Moreover, neighborhood recreational open space was virtually non-existent (Ojo-Fajuru, 2003). The current study, conducted 12 years later, shows a slight improvement; 394 (12.65%) of the 3,114 respondents affirmed the availability of organized open spaces for recreation in their neighborhoods as shown in Table 9.30.

<b>Open space availability within neighbourhood</b>	<b>Available</b>	<b>% within the zone</b>	<b>Not sure</b>	<b>% within the zone</b>	<b>Not available</b>	<b>% % within the zone</b>	<b>Total</b>	<b>% of total</b>
<b>COAs</b>	139	11.53	283	23.47	784	65.00	<b>1206</b>	<b>38.73</b>
<b>NDA</b> s	182	12.59	349	24.14	915	63.27	<b>1446</b>	<b>46.43</b>
<b>PRE</b> s	73	15.80	180	38.96	209	45.24	<b>462</b>	<b>14.84</b>
<b>TOTAL</b>	<b>394</b>	<b>12.65</b>	<b>812</b>	<b>26.08</b>	<b>1908</b>	<b>61.27</b>	<b>3114</b>	<b>100.00</b>

Source: Field survey, July 2015.

Table 9. 30: Availability of open spaces in the morphological zones of Ado-Ekiti.

The PREs led the way with 73 (15.80%) respondents agreeing with this statement, while the figures for the COAs and NDAs are 139 (11.53%) and 182 (12.59%), respectively. Eight hundred and twelve respondents (26.08% of the overall sample) were uncertain if there were any organized open spaces in their neighborhoods. They outnumbered the affirmative responses by a wide margin.

The findings thus expose a gross deficiency of organized public open spaces in the study area; 1,908 respondents (61.27%) confirmed the lack of such spaces, with 65.00% in the COAs, 63.27% in the NDAs, and 45.24% in the PREs. If the responses of those that were not sure of the availability of organized open spaces in their neighborhood are added to this figure, 87.35% of the respondents attested to the non-availability of such spaces in the capital city. The combined frequency rates are 88.47%, 67.41% 84.20% in the COAs, NDAs and PREs, respectively. There

is thus a need to conserve public open spaces as green spaces, and provide recreational opportunities in Ado-Ekiti. The scenic beauty, which these naturally green spaces would have bequeathed on the cityscape, is conspicuously lacking, with serious implications for lost recreational and tourist attractions, employment creation, and income generation in the capital city

### Typology of available open spaces in the neighbourhood districts of Ado-Ekiti

In-depth investigation of the availability of open spaces revealed different types ranging from naturally occurring open spaces and undeveloped plots to commercial open spaces as well as religious places. Incidental open spaces are most common, representing 25.38% in the study area. The majority is found in the COAs around 39 house representing 30.54% in the zone. It occurs around 51 houses constituting 21.31% in the NDAs, while the PREs had 10 making up 22.75% of the zone (see Table 9.31).

Zone/ Type of open space	Recre- ational	% within zone	Institu- tional	% within zone	Histo- rical	% within zone	Incid- ental	% within zone	Comm- ercial	% within zone	Reli- gious	% within zone	Oth- ers	% within zone	Total	% of total
COAs	24	14.37	16	9.58	8	4.79	39	30.54	41	24.55	22	13.17	5	2.99	155	39.34
NDAs	20	10.93	40	21.86	10	5.46	51	21.31	44	24.04	22	12.02	8	4.37	195	49.49
PREs	7	15.91	2	4.54	7	15.91	10	22.75	14	31.82	-	-	4	9.09	44	11.17
<b>TOTAL</b>	<b>51</b>	<b>12.94</b>	<b>58</b>	<b>14.72</b>	<b>25</b>	<b>6.34</b>	<b>100</b>	<b>25.38</b>	<b>99</b>	<b>25.12</b>	<b>44</b>	<b>11.17</b>	<b>17</b>	<b>4.31</b>	<b>394</b>	<b>100.00</b>

Source: Field survey, July 2015.

Table 9. 31: Enumeration of various open space types in the neighbourhood districts of morphological zones in Ado-Ekiti.

It was observed during fieldwork that commercial open spaces have steadily encroached on incidental open spaces. The commercial spaces are almost double the size of recreational open spaces in the morphology of the city, representing 25.12% and 12.94% of the total sample, respectively. Commercial open spaces are distributed as follows across the zones: COAs - 41 houses (24.55%); NDAs - 44 buildings (24.04%) and PREs - 14 structures (31.82%), while the figures for recreational open space are COAs - 24 (14.37%), NDAs - 20 (10.93%), and PREs - 7 (15.91%). Some recreational spaces such as playgrounds and football pitches occur within the premises of educational institutions (see Figure 9.69). These spaces that are used for active and passive outdoor recreation amounted to 14.72% of the study area.



Source: Field survey, July 2015.

Figure 9. 68: Institutional open spaces in the form of playgrounds and football pitches at private and public schools and colleges in various neighbourhood districts in Ado-Ekiti.



Source: Field survey, July 2015.

Figure 9. 69: Muslim Praying Ground near Ado Grammar School Odo-Ado typifying religious open spaces in the various morphological zones in Ado-Ekiti.

The study also exposed the relative lack of historical open spaces and scattered religious open spaces in the city. While the former occurred at a rate of 6.34%, the latter had a frequency of 11.17% even though they are limited to the COAs and PREs (Table 9.31). Direct observation revealed that some open spaces are solely dedicated to religious use such as the All Christians

Ecumenical Picnic Ground located on the rocky outcrop opposite the School of Nursing and Midwifery along Opopogbooro, Adebayo Estate, and the Muslim Praying Ground near Ado Grammar School Odo-Ado; both in the NDAs of the city (see Figure 9.70). In addition, incidental open spaces like uncompleted buildings and vacant lots mainly found within the new development residential areas, and pockets of residential use that are being changed and developed as religious use, making for precarious structures. Sundry open spaces scattered across the three zones constitute 4.31% of the study area.

<b>Typology of Open Spaces</b>	<b>Frequency</b>	<b>Ratio</b>	<b>Percentage</b>
<b>Recreational</b>	84	1:0.181	18.0
<b>Commercial</b>	111	1:0.239	24.0
<b>Religious</b>	56	1:0.120	12.0
<b>Historical</b>	46	1:0.099	9.9
<b>Cultural</b>	33	1:0.071	7.1
<b>Natural/Unused</b>	135	1:0.290	29.0
<b>Total</b>	<b>464</b>	<b>1:1</b>	<b>100.0</b>

Source: Ojo-Fajuru (2003:27)

Table 9. 32: Typology of open spaces in Ado-Ekiti.

Comparison of this data series with data produced by an earlier study as presented in Table 9.32 (Ojo-Fajuru, 2003) shows that the various types of open spaces have shrunk as a result of sporadic city expansion in response to increasing spatial demand for human activities in the fledging capital city. This situation has been aggravated by the influx of citizens from other parts of the state as well as the immigration of other tribes to the city, which led to the proliferation of commercial and informal activities. Commercial activities abound on sidewalks, setbacks, public places and open spaces along major streets, creating disorderly outdoor spaces devoid of urban greenery. This indicates a mismatch between reality and the city's aspiration to be a great place that promotes liveability and inclusiveness.

### **Ownership structure of open spaces in the morphological zones of Ado-Ekiti**

It was found that 25.63% of open spaces in the city are publicly owned, showing that the three levels of government have low involvement in this sector. Ownership of another 19.29% of open spaces vests in public-private partnerships (Table 9.33). Furthermore, 7.11% of open spaces are owned by corporate bodies, indicating such entities' lack of involvement in the provision and

ownership of open spaces in the city. Private individuals owned 44.76% of existing open spaces in the city; surprisingly, in the state-established PREs, the private sector's stake was the highest at 63.42%. A paltry 3.55% of the respondents were uncertain of who owned the open space in Ado-Ekiti.

Existing open space ownership	Public ownership	% within zone	Public-private ownership	% within zone	Corporate ownership	% within zone	Private ownership	% within zone	Others	% within zone	Total	% of total
COAs	46	27.38	20	11.91	11	6.55	83	49.40	8	4.76	168	42.63
NDAAs	40	27.77	42	29.17	15	10.42	41	28.47	6	4.17	144	36.55
PREs	14	17.07	14	17.07	2	2.44	52	63.42	-	-	82	20.81
<b>TOTAL</b>	<b>100</b>	<b>25.63</b>	<b>76</b>	<b>19.29</b>	<b>28</b>	<b>7.11</b>	<b>176</b>	<b>44.67</b>	<b>14</b>	<b>3.55</b>	<b>394</b>	<b>100.00</b>

Source: Field survey, July 2015.

Table 9. 33: Ownership structure of existing open spaces in the morphological zones of Ado-Ekiti.

### Existing condition and maintenance of open spaces in the morphological zones of Ado-Ekiti

Table 9.34 shows the lack of organized, well-landscaped recreational open spaces in the city, constituting only 4.57% of the study area, and making up 0.63% of the COAs, 2.41% of the NDAs and 18.31% of the PREs. This concurs with Ojo-Fajuru and Adebayo's (2014b) study which noted that only 4.60% of the city was given over to landscaped, furnished open spaces for recreation and relaxation, mainly located in the GRAs. It was found that landscaped but unfurnished open spaces constituted 10.66% and were more common in the PREs than the other two zones. Together, the two types of open space make up 25.23%, which is inadequate to provide recreational facilities in the city (see section 9.3.1). The shortage of recreational open spaces means that there is insufficient greenery, with attendant negative effects on health, comfort, recreation, and liveability, and hence the productivity of city dwellers.

Open space condition and maintenance	Well landscaped and furnished	% within zone	Landscaped but not furnished	% within zone	Left bare	% within zone	Over-grown with weeds	% within zone	Used for refuse disposal	% within zone	Encroached or developed illegally	% within zone	Total	% of total
COAs	1	0.63	10	6.33	65	41.14	25	15.82	16	10.13	41	25.95	158	40.10
NDAs	4	2.42	17	10.30	51	30.91	29	17.58	22	13.33	42	25.45	165	41.88
PREs	13	18.31	15	21.13	14	19.72	7	9.86	5	7.04	17	23.94	71	18.02
<b>TOTAL</b>	<b>18</b>	<b>4.57</b>	<b>42</b>	<b>10.66</b>	<b>130</b>	<b>32.99</b>	<b>61</b>	<b>15.48</b>	<b>43</b>	<b>10.91</b>	<b>100</b>	<b>25.38</b>	<b>394</b>	<b>100.00</b>

Source: Field survey, July 2015.

Table 9. 34: Existing condition and maintenance of open spaces in the morphological zones of Ado-Ekiti.

Furthermore, a significant proportion (32.99%) of existing open spaces in the study area, mainly in the COAs and NDAs, was found to be susceptible to erosion. Exposed surfaces absorb heat and radiation in the tropical city environment, aggravating the urban heat island syndrome, and contributing to climate change. It was observed that 15.48% of the open spaces appeared abandoned and overgrown with weeds, while 10.91% were generally unkempt, and littered with refuse and human excrement. This degrades the city environment and exposes urban dwellers to the risk of diseases and attack by reptiles and miscreants. The study also found that 25.38% of existing open spaces have been encroached upon. This trend cuts across all the morphological zones. This could be attributed to the fact that these open spaces have been left uncared for, thereby creating an erroneous impression that the spaces are vacant. A state capital is expected to provide a clean, safe, healthy, green and aesthetic environment in line with international best practice to qualify as a great place that promotes liveability, inclusiveness and sustainability.

### **Existing condition and maintenance of incidental open spaces in the various residential neighborhood districts in the morphological zones of Ado-Ekiti**

Table 9.35 shows that as little as 13.57% of spaces were covered with green landscaping elements like trees, shrubs, grasses and flowers, especially in the planned residential districts. This form of surface treatment of unused open spaces is very scarce in the NDAs and almost non-existent in the COAs, where, as earlier established, the built-up areas lack greenery as a result of setback encroachment and poor treatment.

Existing State of Incidental Open Spaces	Covered with greens	Covered with granite chippings	Paved with concrete interlocking tiles	Left bare	Over-grown with weeds	Strewn with refuse used as refuse heap	Total
COAs	3	7	35	56	10	42	153
% within zone	1.96	4.58	22.88	36.60	6.54	27.45	43.96
NDAs	19	17	20	35	27	7	125
% within zone	15.20	13.60	16.00	28.80	21.60	5.60	36.92
PREs	25	6	18	6	4	11	70
% within zone	35.71	8.57	25.71	8.57	5.71	15.71	20.11
<b>TOTAL</b>	<b>47</b>	<b>30</b>	<b>73</b>	<b>97</b>	<b>41</b>	<b>60</b>	<b>348</b>
% of total	13.57	8.62	20.98	27.87	11.78	17.24	100.00

Source: Field Survey, 2015.

Table 9. 35: Existing state of incidental open spaces in neighborhood districts within the morphological zones of Ado-Ekiti.

The study also confirmed the preference for hard landscaping in the city; 8.62% of the incidental open spaces were covered with granite chips, while a large portion (20.98%) was paved with concrete slabs and prefabricated sandcrete interlocking tiles. Moreover, the largest portion of incidental open spaces accounting for 27.87% was left bare, especially in the COAs and NDAs at 36.60% and 28.80%, respectively. Incidental spaces with hard landscape surfaces amounted to 57.47%. It is inferred that these spaces were covered in vegetation before they were cleared to make way for development. The replacement of nearly 60% of vegetative cover with hard surfaces causes heat generation that impacts negatively on the micro-climate. As a result, the city lacks the benefits of green nature that Azwar and Ghain (2009) describe as “the sound of birds, the seasonal display of blossom fruit and changing leaf colour and splendor” that guarantee good air quality, urban comfort and liveability.

The data show that about a third of existing incidental open spaces are poorly maintained or carelessly abandoned; 11.78% are overgrown with weeds or wild plants. This was most common in the NDAs (21.60%). Open spaces that were generally unkempt, strewn with refuse or used as a dump made up 17.42% of the study area, but were most prevalent in the COAs (27.45%). Poor maintenance of outdoor spaces which the study established as a recurring theme reflected in the treatment of setbacks and air spaces and other open spaces, have significant carbon footprints and negative implications for the quality of life and liveability on the one hand, and the quality of the environment and landscape sustainability on the other.

### **Quantitative and qualitative evaluation of recreational open spaces in Ado-Ekiti**

Organized recreational open spaces constitute only 18% or a ratio of 1:0181 of open space types available within the urban matrix. This is insufficient for a city that is the melting pot of socio-economic, political, administrative, educational and cultural activities in Ekiti State. The location of the identified recreational open spaces is shown in Figure 9.71, while their attributes by type, ownership, operation, level of participation, facility assessment and the use to which they are put, the degree of usage, maintenance and associated problems are inventoried in Table 9.36.

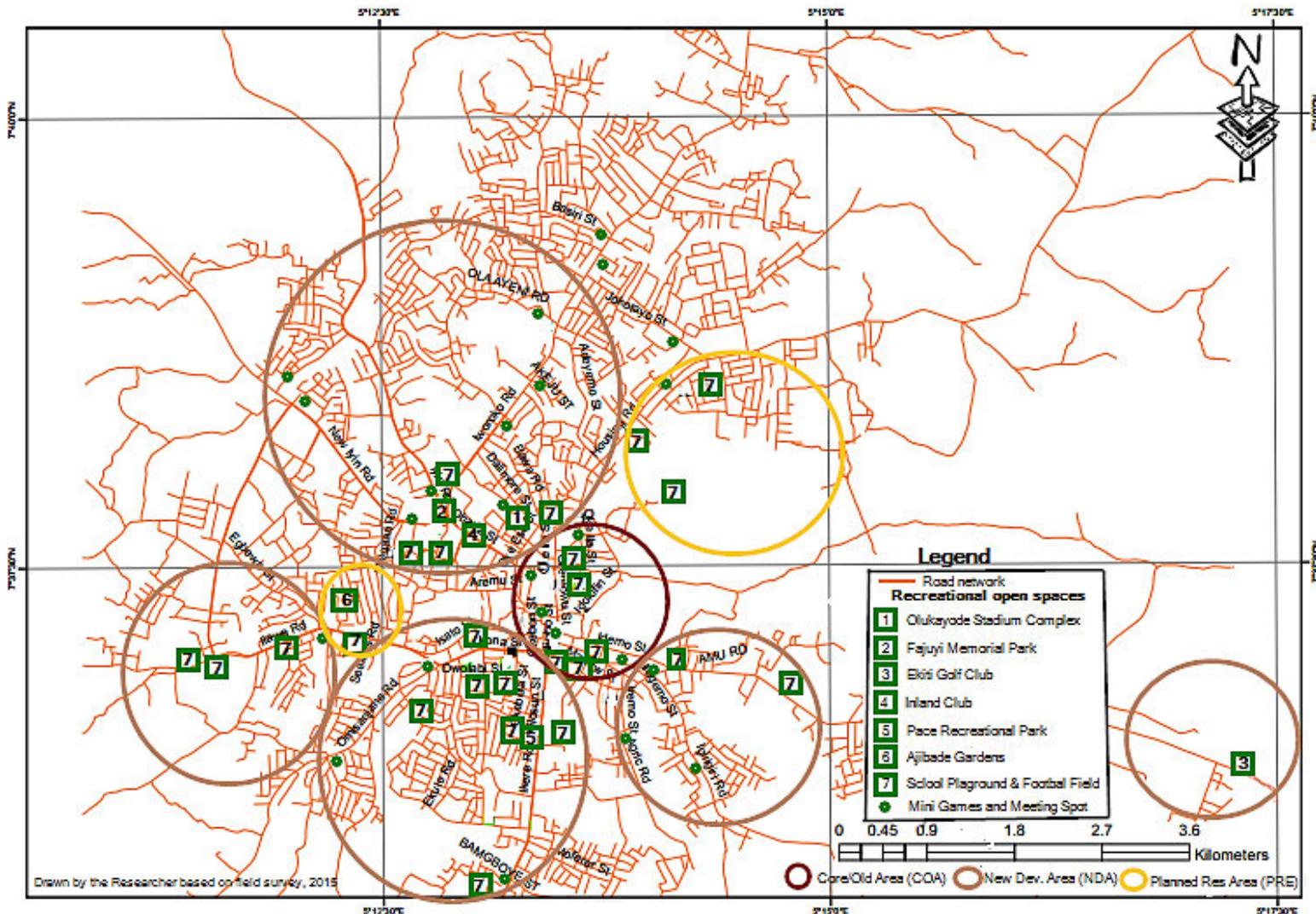
Recreational Open Space	Ownership			Operation		Class of Recreation		Level of Participation		Facilities				Degree of Usage				Maintenance				Associated Problems				
	Govt.	Private Org.	Private Indiv.	Public	Private	Indoor	Outdoor	Active	Passive	Fully equipped	Moderately Equipped	Scarcely Equipped	Normal Playing Field	Daily	Periodic	Hardly	Abandoned	Well Maintained	Fairly Maintained	Poorly Maintained	Abandoned	Damaged facilities	Inimical environment	Inadequate facilities	Overcrowding	Minor
Oluyemi Kayode Stadium	•			•		•	•	•	•	•				•	•			•				•			•	
Fajayi Memorial Park	•						•		•			•			•	•				•		•	•	•	•	•
Ekiti Golf Club	•				•	•	•	•	•	•				•				•							•	
Inland Club		•			•	•	•	•	•	•				•				•				•				
Pace Recreation Park	•				•	•	•	•	•		•			•					•			•		•		•
Ajibade Gardens		•	•		•	•	•	•	•	•				•				•								
School Playground and Football Fields	•	•	•				•	•	•				•	•					•			•				
Mini Game Centers (Ayo & Snooker Sheds)		•				•		•	•	•	•			•					•			•		•		

Source: Field Survey, 2015.

Table 9. 36: The qualitative evaluation of identified open spaces showing their location, type, level, facility assessment, and the use to which they are put in Ado-Ekiti.

### Oluyemi Kayode Stadium Complex

As seen in Figure 9.72, the Oluyemi Kayode Stadium Complex, established in 1970, is the highest level of organized open space available in Ado-Ekiti and indeed Ekiti State. It is located in the NDAs, along Kajola Street in the Okesha area of the Oke-Ewi residential district, on the old site of an open space called ‘the community center’. The stadium complex is owned and operated by the Ekiti State Sports Council under the supervision of the State Ministry of Information, Youth and Sports. It is equipped for a wide range of indoor/outdoor and active/passive recreation. It offers various facilities including a canopy cover for the ‘state box’; reserved seats and covered seats, uncovered concrete side seats, a football field, volleyball pitches, basketball courts, lawn tennis, table tennis and badminton courts, boxing rings and races tracks. Other available facilities include electricity, water, telephone, garden, tables and chairs, sheds, toilets, changing rooms, kiosks, locked-up shops and music. The stadium is a vibrant games spot, especially for draughts and *ayo* (game played with sets of four seeds in twelve holes usually on a wooden frame). This vibrant games spot attracts participants from the staff of the Sports Council. The Stadium provides opportunities for hosting and watching organized sports like school inter-house sports competitions, inter-school sports and games, friendly football matches and seasonal league matches, as well as active participation in different sports and games.



Source: Drawn by the Researcher based on field survey 2015.  
 Figure 9. 70: The location of identified open spaces in the three morphological zones of Ado-Ekiti.



Source: Field survey, July 2015.

Figure 9. 71: The Oluyemi Kayode Stadium Complex is equipped for a wide range of indoor/outdoor as well as active/passive recreation, and is located in the new development area of the city.

### **Fajuyi Memorial Park**

Fajuyi Memorial Park contains the tomb of the late Lt. Col. Adekunle Fajuyi who was the first Military Governor of Western State of Nigeria and was assassinated in the bloody coup of 1966. Located in Okesha opposite the High Court at the junction of Ado-Iyin/Ado-Ifaki Roads in the NDAs, the Park is virtually the only public open space in Ado-Ekiti. It offers a variety of exotic plants, concrete paving, walkways, seats and a life size statute of Fajuyi the Great, as well as that of the Unknown Soldier at the Remembrance Arcade (see Figure 9.73). It offers a perfect environment for recreation activities. Facilities include restrooms and a telephone service. However, during field observations, it was found that the gates to the park were permanently locked. It is only open for occasions like Armed Forces Remembrance Day and the anniversary of Fajuyi the Great.



Source: Google images, May 2015.

Figure 9. 72: The life size statue of Fajuyi the Great forms the focal point in Fajuyi Memorial Park Ado-Ekiti where exotic planting, grassing, paving, water and concrete seats offer perfect environment and opportunity for recreation activities.



Source: Field survey, July 2015.

Figure 9. 73: The Fajuyi Memorial Park: threatened with encroachment from informal commercial ventures more than being used for recreational activities.

People take advantage of the strategic location of the Park at the meeting point of two federal highways, the Fajuyi Park-Iyin-Igede-Aramoko-Ilesha, and the Fajuyi Park-Opopogboro-Campus-Ifaki-Ido/Oye Roads for activities unrelated to recreation (Table 9.36). The surroundings of the Park are a beehive of activities during the day to the extent that it is seriously threatened with encroachment as it is gradually taken over by transport services and commercial activities (see Figure 9.74 above). As a result, the environment is filthy, strewn with litter and often polluted by open burning of refuse. The few concrete seats provided are damaged from overuse, while some parts of the Park are overgrown with weeds and infested with dangerous reptiles.

### **Ekiti Golf Club**

Ekiti Golf Club is located along the Federal Polytechnic Road in the Odo-Ado residential district of Ado-Ekiti. Occupying a vast area of land in the NDA, it was established in 1997 by the pioneer Military Administrator of Ekiti State, Lt. Col. Inuwa Bawa, and is strictly limited to members. It is one of a kind in Ekiti State and attracts members from all walks of life. Facilities include the clubhouse, the extensive golf course/polo ground, parking (Table 9.36), telephone and satellite communication and training. The Club is government owned but privately operated, and is fully equipped for indoor and outdoor, and active and passive recreation activities. Most of the facilities are relatively new and are well maintained (see Figures 9.75, 9.76 and 9.77). However, membership is limited to the high-class elite and top government officials, thereby ruling out inclusiveness to all class of citizens.

### **Inland Club**

The Inland Club is the oldest club in Ado-Ekiti. It is located in Okesha residential district, about 200 meters walking distance from Fajuyi Memorial Park in the NDA. The Club offers a wide range of facilities for indoor and outdoor recreation (Table 9.36). These include lawn tennis courts, table tennis, billiards, *ayo*, draughts, ludo, tombola, drinking and relaxation. The club is a social organization and the facilities are well maintained, though some are damaged and need to be replaced. Membership is also restricted to the elite and upper class.



Source: Field survey, July 2015.

Figure 9. 74: The Ekiti Golf Club is located along Federal Polytechnic Road. It is government owned but privately operated, and is fully equipped for indoor, outdoor, active and passive recreation activities.



Source: Google Earth, 2016.

Figure 9. 75: Aerial view of the golf courses at the Golf Club extracted from satellite imagery.



Source: Field survey, July 2015.

Figure 9. 76: The extensive but exclusive lush green golf course/polo ground of the Golf Club at sunset.

### **Pace Recreation Park**

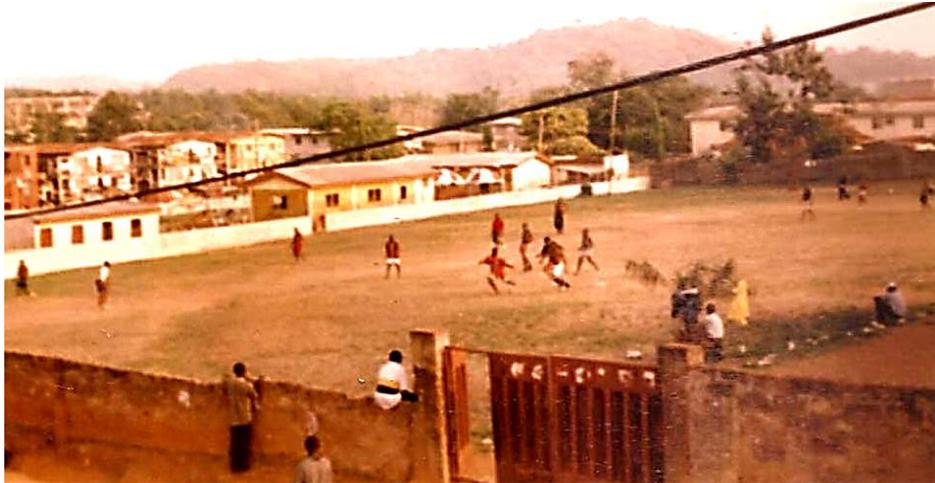
Pace Recreation Park opposite the Ministry of Works and Transport along Ajilosun Road in the Ijigbo residential district of Ado-Ekiti, was originally commissioned as children's playground by Navy Captain Musibau Atanda Yusuf in December, 1998. Found within the NDA, it is government owned, but privately operated (Table 9.36). The park is fenced and well laid out with walkways, grass and a fountain. It is not well-vegetated but covered facilities include sheds and thatch roofed huts, and it is equipped with concrete seats, plastic garden tables and chairs, children's play equipment and outdoor drinking bays. Snooker tables and other games equipment are also on offer.

### **Ajibade Gardens**

The Garden was established in December 2003 by a university don after whom it was named. As shown in Table 9.36, this is thus a privately established recreational open space, the first of its kind in Ado-Ekiti, and perhaps the rest of Ekiti land. It is located along G.R.A road, off Ilawe Road in Irona residential district in the PREs. The Garden is fenced and well laid out with paved walkways, grass and exotic flowers of various species, colours and scents. The trees are fully grown while more mature ones are required to provide shade. Facilities include a service building, thatch roofed huts, sheds, seats, assorted children's play equipment, electricity and a power generating plant, and telephone services. Ajibade Gardens is indeed a model for well-organized recreational open space and it offers a romantic setting for indoor, outdoor, and active and passive recreation.

### **School Playgrounds and Football Fields**

There are more than 64 playgrounds and football fields at schools and colleges in different parts of the three morphological zones of Ado-Ekiti, the relative location of some of which are plotted on Figure 9.71. Facilities are limited to pitches, goal posts, basketball pitches, volleyball pitches, and in some cases like Christ School, lawn tennis and seating pavilions. These are mainly used by youth in primary and secondary schools (Table 9.36 and Figure 9.78).



Source: Field survey, July 2015.

Figure 9. 77: School playgrounds offer sports fields for youth to participate in outdoor, active and passive recreation activities.

### **Mini Games and Meeting Spots**

There are over 57 *ayo* sheds, several snooker booths and table tennis stands occurring in all the three morphological zones of Ado-Ekiti. Findings in Table 9.36 show that these gaming centers are privately established and operated. Apart from different games, they serve as meeting places to settle disputes and disseminate vital information to the community. According to Chief A. O. Fasubaa, the Oisa of Ado-Ekiti, the games shed in front of his compound in Odo-Ado residential district is better described as a “relaxation center and people’s court”. It was established more than 60 years ago and has served as a place to resolve sensitive issues like land/boundary disputes, kidnapping, communal clashes and family problems, among others.

At Eribi Street in Ijigbo area of Oke-Ewi residential district, Mr. Jimoh Adebayo, a furniture maker testified that the games center under a tree near his work shed was established in 1990, while the one at Obatedo, a few meters away was claimed to have been in operation since the early 1930s, shortly before the reign of Oba Aladesnami II which commenced in 1937. Oral history relates that on assuming the position of Ewi Anirare, Oba Daniel arrested those that patronized the *ayo* centers early in the morning rather than reporting for work. To this day, the games centers, and indeed most drinking and relaxation joints do not open until noon. Facilities include equipment for *ayo*, draughts, ludo, snooker, table tennis, benches, chairs and in some cases, music.

## Nature and type of encroachment on setbacks and open spaces in the morphological zones of Ado-Ekiti

Having uncovered the tendency for people to illegally encroach on or develop setbacks and open spaces, the nature of this encroachment was further examined; the data is shown in Table 9.37.

Existing nature or type of encroachment	Residential use	% within zone	Trading shops	% within zone	Work-shop/light industry	% within zone	Religious use	% within zone	Used as refuse heap	% within zone	Other uses	% within zone	Total	% within zone
COAs	91	8.46	639	59.44	79	7.35	114	10.61	55	5.12	97	9.02	1075	41.08
NDAAs	97	8.69	681	61.02	155	13.89	97	8.69	43	3.85	43	3.85	1116	42.64
PREs	209	49.06	125	29.34	13	3.05	13	3.05	36	8.45	30	7.04	426	16.28
<b>TOTAL</b>	<b>397</b>	<b>15.17</b>	<b>1445</b>	<b>55.21</b>	<b>247</b>	<b>9.44</b>	<b>224</b>	<b>8.56</b>	<b>134</b>	<b>5.12</b>	<b>170</b>	<b>6.50</b>	<b>2617</b>	<b>100.00</b>

Source: Field Survey, July 2015

Table 9. 37: Nature or type of encroachment on setbacks and open spaces in Ado Ekiti.

Commercial uses mainly comprising of shops of makeshift or permanent structure constituted 55.21% of the encroachment. As noted earlier, commercial activities have taken over every available space including sidewalks and even roadways along major and minor roads. In the core and new development areas of the city, commercial encroachment was recorded at 59.44% and 61.02%, respectively while the PREs had a rate of 29.34%. The worst hit areas are major roads such as Ajilosun, Ijigbo, Old Garage Orereowu and Okeyinmi Streets, Ogbon-Oba, Okesha Street, Fajuyi Park, Igbehin, Irona, Dallimore and Odo-Ado Streets. Setbacks and open spaces on both sides of major transportation corridors such as State Secretariat Road and Dayo Fajuru Road, Oke-Ila (see Figure 9.79) in the planned residential area of the city have also been taken over by commercial activities.

Minor roads that are clogged with illegal commercial activities include Idemo, Inisa, Ereguru, Ojumose and Kajola Streets, Ola Ajayi/Water Road and Okebola Street in the core and new development areas. In the planned residential estates, Deji Adegbite and Spotless Streets, and 8<sup>th</sup> and 6<sup>th</sup> Avenues are some of the minor roads where setbacks and open spaces are illegally occupied. Access roads such as Iyere Street, Ogbon Ado, Atikankan, Eribi Street, and Oke Oniyo Road in the core and new development areas are overcrowded with commercial activities. The same is true of Onigari and Ajiyegbe Apansile Streets in GRA, and 7<sup>th</sup> and 5<sup>th</sup> Avenues in SHE, Oke-Ila, both in the PREs where illegal informal commercial activities are the order of the day.



Source: Field survey, July 2015.

Figure 9. 78: Commercialization of setbacks and open spaces along Dayo Fajuru Road Oke-Ila in the planned residential area of Ado-Ekiti.

This confirms the findings of an earlier study (Ojo-Fajuru and Adebayo 2014b) which established that about a third of setbacks and incidental open spaces in Ado-Ekiti and Akure were illegally occupied by traders, workshops and other informal activities. The number of quality spaces around buildings and the urban web dwindled, negatively impacting aesthetics and environmental quality in these capital cities.

Uncontrolled illegal encroachment on setbacks and open spaces negates safety standards and orderliness in the city. The residential areas are gradually being overtaken by commercial activities that allow no space for landscaping elements, while available ones are threatened. For example, along Ajilosun Street, setback spaces are used to display goods, while street furniture such as protective railings along the green areas have been removed and used as grates on open drainage channels to access roadside shops (see Figure 9.80). The use of paved sidewalks and tarred road surfaces as extensions of shops to display goods (Figure 9.81 and 9.82) hinders free pedestrian movement. Areas devoted to greenery and circulation are reduced on a daily basis,



Source: Field survey, July 2015.

Figure 9. 79: Railings for green area demarcation and protection were audaciously removed and used as grates on open drainage channels to access roadside shops at Ajilosun Street, Ado-Ekiti.



Source: Field survey, July 2015.

Figure 9. 80: Trading on setbacks extended to paved sidewalk in an ‘I don’t care’ attitude to the exclusion of pedestrians at Okeyinmi Street in the state capital.



Source: Field survey, July 2015.

Figure 9. 81: With illegal structures attached to houses on setback spaces; water (for sale) tanks across the drainage channel; cooking, frying and trading taking place on the road surface, it is business as usual backed by highhanded impunity at Kajola Street in the new development area.



Source: Field survey, July 2015.

Figure 9. 82: Complete blockage of setback space with articles of trade like plastic water tanks and electric poles is rampant along Dayo Fajuru Road Oke-Ila in the planned residential zone of Ado-Ekiti.

while the benefits derivable from green landscaping have been sacrificed on the altar of commercialization for personal aggrandizement (Figure 9.83). The disorderliness and chaos that characterize the cityscape cause visual pollution and formlessness unbefitting the status of the city as a state capital and great place. This is inimical to sustainable landscape development. The study also found that 15.17% of encroached setbacks and open spaces in the city are used for residential purposes. These substandard developments that were largely unapproved do not comply with the requirements for minimum setbacks, rendering them a danger to lives and property.



Source: Field survey, July 2015.

Figure 9. 83: Use of setbacks and open spaces as workspace for welding and metal fabrication and for the display of finished products at Oke Bola Street in the new development area of the capital city.

The use of these spaces for domestic activities also has serious implications for facilities and amenities which are overstretched, misused or abused as reflected in the use of drainage channels or nearby spaces for refuse disposal and defecation. The despoilment of these areas has serious implications for flooding, pollution and sanitation.

The result is a dearth of the greenery, aesthetics, air purity and quality environment expected of a capital city. The findings also show that informal, illegal workshops and light industrial activities and services occupy 9.44% of setbacks and open spaces in the city. Operating in makeshift wooden or metal structures, or in the open air and discharging their waste and effluent into their immediate surroundings these informal concerns display their products and services on the roadside as shown in Figure 9.84. Services offered include carpentry and furniture, metal fabrication and welding, mechanic services and panel beating, grinding and milling, vulcanizing, shoe cobbling and repairs, and newsstands. The arrangement of these activities follows no particular pattern and they are an eyesore in the landscape. They threaten the greening of setbacks and open spaces and place making potential in the state capital.

Setbacks and open spaces used for religious purposes, especially churches and praying grounds constituted 8.56% of the study area. This is an indication of the proliferation of churches in this study area, where uncompleted or makeshift structures are used. Noise pollution is a major problem, and the structures block air space and rob the area of green space.

Furthermore, it was established that 5.12% of setbacks and open spaces were used as refuse heaps. This jeopardizes the physical appearance and quality of the environment and threatens the health and well-being of residents. Storage of building materials, wells, water reservoirs and septic tanks, outside seating and urinals at drinking and other joints, as well as tombs and tombstones occupied 6.5% of setbacks and open spaces in the city. This is tantamount to development that requires permission. Illegal occupation of setbacks and open spaces worsens the already disorderly streetscape, escalates pollutions, aggravates carbon footprints and subtracts greenery from vital areas of the city.

By means of physical measurements, it was established that spaces encroached with shops, workshops, makeshift sheds, shacks and even bare floor without cover or with improvised cover such as umbrellas, for informal sector activities mostly by traders, artisans, service providers and other illegal occupation on setbacks to roadways across the three morphological zones in the study area range from 1.5m<sup>2</sup> to 23.50m<sup>2</sup>. This boiled down to an average of 5m<sup>2</sup> per person.

In summary, encroachment violates the law and standard best practice, and therefore poses a danger to the environment and the citizenry. It is an ill and selfish wind that blows no collective good and hence needs to be addressed to prevent further deterioration of the overall landscape and environment of the city.

### **Levels of encroachment on setbacks and open spaces in the city’s morphological zones**

The respondents’ opinions on encroachment on setbacks and open spaces in the morphological zones in the city are presented in this section based on the data shown in Table 9.38. No encroachment was claimed in 8.76% of cases. Interestingly, the highest response rate for the non-existence of encroachment was recorded in the COAs at 10.05% which dropped to 5.16% in the NDAs, while the PREs recorded 3.63%. The study also revealed a very low overall level (18.8%) of encroachment on setbacks and open spaces, at 35.90% in the PREs, 14.58% in the

Zone/Setbacks and open spaces encroachment	None (0%)	%	Very low (1-20%)	%	Low (21-40%)	%	Moderate (41-60%)	%	High (61-80%)	%	Very high (81-100%)	%	Total	%
<b>COA</b>	126	10.50	175	14.58	294	24.50	222	18.50	359	29.92	24	2.00	<b>1200</b>	<b>40.73</b>
<b>NDA</b>	66	5.16	211	16.51	264	20.66	312	24.41	378	29.58	47	3.68	<b>1278</b>	<b>43.38</b>
<b>PRE</b>	17	3.63	168	35.90	95	20.30	127	27.13	48	10.26	13	2.78	<b>468</b>	<b>15.89</b>
<b>TOTAL</b>	<b>209</b>	<b>8.76</b>	<b>554</b>	<b>18.81</b>	<b>653</b>	<b>22.17</b>	<b>661</b>	<b>22.43</b>	<b>785</b>	<b>26.65</b>	<b>84</b>	<b>2.85</b>	<b>2946</b>	<b>100.00</b>

Source: Field survey, July 2015.

Table 9. 38: Levels of encroachment on setbacks and open spaces along morphological divides in the capital city of Ekiti State.

COAs and 16.51% in the NDAs. Moreover, the study found that 22.17% of the study area experienced a low level of encroachment on setbacks and open spaces, at 24.50% in the COAs, and virtually the same level in the NDAs and the PREs at 20.66% and 20.30%, respectively.

Table 9.38 also shows that 22.43% of setbacks and open spaces in the study area were moderately encroached on with the PREs at the forefront at 27.31%. The COAs and the NDAs recorded 18.50% and 24.4%, respectively. Given the ideal situation of zero tolerance for encroachment, the combined rates of encroachment in the three morphological zones of the study area is extremely high at 91.24%.

### **Factors mainly responsible for encroachment on setbacks and open spaces in the morphological zones of Ado-Ekiti**

The causes of incessant encroachment on setbacks and open spaces were investigated. The results are presented in Table 9.39, and discussed according to the frequency of response below.

#### **Ignorance and a carefree attitude to a good quality environment**

The main factor attributed to wanton encroachment on setbacks and open spaces in the city is ignorance and the “I don’t care” attitude relating to the sustenance of good quality (34.65% of the respondents). Interestingly, this was the primary factor raised by respondents in the PREs (56.62%), while 40.17% of those in the COAs cited this issue and 22.73% in the NDAs.

Cross tabulation revealed that education and literacy levels were the highest in the PREs, at intermediate level in the NDAs and the lowest in the COAs (Table 9.38). These factors are linked to the carefree attitude to the benefits derivable from a well-landscaped and good quality environment. Negative perceptions of the benefits of green landscaping led to disregard for open spaces and setbacks to the extent of willfully encroaching on them.

Setback and open space encroachment casual factor	Lack of government control	%	Demand for buildings for various uses	%	Ignorance and care free attitude to good quality environment	%	Desire for economic benefit	%	Activities of land speculators	%	Oth-ers	%	Total	%
<b>COA</b>	396	31.13	138	10.85	511	40.17	162	12.74	65	5.11	-	-	<b>1272</b>	<b>39.85</b>
<b>NDA</b>	545	37.53	223	15.36	330	22.73	299	20.59	31	2.13	24	1.65	<b>1452</b>	<b>45.49</b>
<b>PRE</b>	73	15.60	59	12.61	265	56.62	24	5.13	47	10.04	-	-	<b>468</b>	<b>14.66</b>
<b>TOTAL</b>	<b>1014</b>	<b>31.77</b>	<b>420</b>	<b>13.16</b>	<b>1106</b>	<b>34.65</b>	<b>485</b>	<b>15.19</b>	<b>143</b>	<b>4.48</b>	<b>24</b>	<b>0.75</b>	<b>3192</b>	<b>100.00</b>

Source: Field Survey, July 2015

Table 9. 39: Main factors responsible for encroachment on setbacks and open spaces in the morphological zones of Ado-Ekiti.

The study found that 26.65% of setbacks and open spaces in the city are negatively impacted by high level encroachment which is of almost equal proportion in the COAs (29.92%) and the NDAs (20.58%). In the PREs 10.26% of setbacks and open spaces had suffered a high level of encroachment. However, very high level encroachment of setbacks and open spaces occurred in only 2.85% of cases in the entire study area.

This suggests that encroachment on setbacks and open spaces is high in the study area relative to other variables. Ideally, there should be no encroachment at all; the fact that only 8.76% of the respondents stated that there was no encroachment is thus cause for concern. This implies that 91.24% of the setbacks and open spaces are subject to encroachment of some kind, which is illegal and highly unacceptable. It is established that the development control organ of government is weak. This is inimical to the attainment of a liveable city and a sustainable landscape capable of transforming Ado-Ekiti into a great green city like San Francisco, Vancouver, New York City, Copenhagen, Stockholm, Helsinki, Cape Town, Johannesburg and Durban.

### **Lack of government control**

The second most common reason cited for encroachment on setbacks and open spaces was the government's inability to effectively control development. Nearly a third (31.77%) of the respondents stated that the laxity of government agencies in carrying out their regulatory responsibilities enabled people to engage in activities that harm the environment and impact the entire citizenry. It was found that many of these illegal structures were hastily constructed using makeshift substandard materials after closing hours or at weekends when officials were unlikely to intervene. The question that arises is if the government lacks control, why can't the developer, be it private, corporate or even public, exercise self-restraint? Instead, people embark on development with impunity with the mind-set that "nothing will happen". This explains why a trader erects a kiosk on any open space or a shop owner or street trader displays their wares on an open space, the sidewalk or even the roadway without any qualms. Whoever dares to complain will be rebuffed with "*se ile baba e ni?*" meaning: "is this your father's property?" Public spaces do not belong to any individual but are collectively owned and held in trust by government to be used to the benefit of all. Generally, nothing happens until the encroachment

becomes a permanent structure. Even if eventually marked for contravention or removal, the construction or activity continues in defiance of the law (see Figure 9.85). This has led to disorderliness and spatial abuse that is killing green initiatives and impacting negatively on the city environment.



Source: Field Survey, July 2015

Figure 9. 84: Marked for demolition along Dallimore Street, Ado-Ekiti since November 2013, this makeshift illegal structure is still standing and in use nearly three years after.

### **Desire for economic benefit**

The third factor identified as responsible for relatively high levels of encroachment on setbacks and open spaces in the cityscape is purely economic in nature. It was found that 15.19% of encroachment in the study area was due to the developer or usurper's desire to improve their financial lot in order to overcome the challenges of daily survival and livelihood. This view was held by 20.5% of respondents in the NDAs, the zone with the highest level of encroachment at 33.26% (the cumulative total of the number of respondents that cited a high level of encroachment in this zone (29.58%) and very high level of encroachment (3.68%) as shown in Table 9.38. The cross tabulation with employment status and level of income revealed that the NDAs had the highest level of informal employment that is known to operate in open spaces, and average income levels, as well as pockets of citizens earning N250,000 and more per month as earlier analysed.

Economic advancement at the expense of the environment is a selfish act that abuses public property. Furthermore, many of the traders in these encroached spaces are non-indigenes of Igbo stock with completely different ethnic background, cultural orientation, value attachment and

socio-economic aspiration. This has adversely affected the entire city environment, rendering it unfriendly, unattractive and not conducive to living, working and relaxation. The gradual loss of the sense and character of place is having adverse effects on the city's choice as a tourist destination, leading to loss of revenue for the government at local and state levels. This is of particular importance in light of dwindling earnings from crude oil sales, which have drastically reduced allocations from the federation account.

### **Demand for buildings for various uses**

Since the creation of Ekiti State about two decades ago, there has been increased demand for space for human activities in Ado-Ekiti which has witnessed an influx of migrants from far and near. The need to accommodate such activities was cited by 13.16% of the study respondents as the reason for encroachment on setbacks and open spaces in the city. The NDAs accounted for the largest number of respondents (15.36% within the zone), with 10.85% in the COAs and 12.61% in the PREs.

The foregoing discussion shows that much development has occurred on setbacks and open spaces without formal permission from the planning authority. It also implies that the developments were largely unplanned, spontaneous and haphazard without any recognizable pattern or layout. This is manifested in the formless and substandard structures that occupy spaces that are supposed to be undeveloped, undermining compatibility and conformity with existing land uses as well as extant statutory regulations on the provision and maintenance of setbacks and open spaces. Most importantly, the illegal structures occupy spaces reserved for green landscaping and street furniture, thereby eroding the quantity, quality and functionality of green spaces in the city. This has concomitant effects on the general outlook of the city and its status as a great place.

### **Activities of land speculators**

The study also found that some setbacks and open spaces have been lost to encroachment due to the nefarious activities of land speculators. Although only 4.48% of the study respondents raised this issue overall, it was cited by 10.04% of those in the PREs, with 5.11% in the COAs and only 2.13% in the NDAs. The findings from the focus group discussion revealed the erroneous belief

that some pieces of land that fall within road setbacks were offered for sale to unsuspecting buyers, mostly non-indigenes especially of the Igbo ethnic group. According to a district chief that preferred to remain anonymous, unscrupulous individuals put pressure on local property owners, offering large sums of money, sometimes running to millions of naira. Thereafter, the new buyers demolish the old buildings and extend their developments beyond the old boundaries into the seemingly open frontage, making incursions into the setback space. How they circumvent approval for such development is an issue for further investigation in another study.

### Other responses

Others factors that cause encroachment on setbacks accounted for 1.65% in the NDAs only, and constituted a mere 0.75% of the responses and are considered too insignificant for discussion.

It can be inferred that any building or structure constructed without approval is illegal, while those erected within the range of setbacks or public open spaces smack of encroachment and contempt for the law. These developments choke the city space and reduce the potential for city greening and sustainable landscape development worthy of a capital city.

### Effects of encroachment on the city environment

Table 9.40 presents the respondents' perceptions of the effects of encroachment. They are discussed in order of perceived gravity.

Zone/Effects of Encroachment on the Environment	Health and Wellbeing	Movement and Circulation	Aesthetics and Environmental Quality	Relaxation and Recreation	Safety and Security	Rental and Property Values	Others	Total
COAs	312	309	264	75	213	72	3	1248
% within zone	25.00	24.76	21.15	6.01	17.07	5.77	0.24	39.85
NDAs	272	318	341	162	241	78	5	1417
% within zone	19.20	22.44	24.07	11.43	17.01	5.50	0.35	45.24
PREs	105	83	172	17	90	-	-	467
% within zone	22.49	17.77	36.83	3.64	19.27	-	-	14.91
<b>Total</b>	<b>689</b>	<b>710</b>	<b>777</b>	<b>254</b>	<b>544</b>	<b>150</b>	<b>8</b>	<b>3,132</b>
% Total	22.00	22.67	24.80	8.11	17.37	4.79	0.26	100.00

Source: Field Survey, July 2015

Table 9. 40: Effects of encroachment on the city environment.

### **Adverse aesthetics and environmental quality**

In all, 24.80% of the respondents maintained that encroachment on setbacks and open spaces has an adverse effect on the general outlook, quality of space, and character of place in the city. These views dominated in areas where encroachment is rampant; for example, 24.07% of the respondents in the NDAs were of this opinion. Monotonous illegal structures, substandard shacks and makeshift kiosks perched precariously on every available space along the streets and around buildings, allowing no room for the softening effect of vegetation, render the entire cityscape unnatural, ugly and unfriendly.

This research establishes that the state of affairs of encroachment is not only illegal; but also represents abuse of the laws of nature. It will hasten degradation, aggravate climate change and induce an ecological imbalance capable of derailing place-making initiatives in the city.

### **Hindrance of movement and circulation**

Illegal occupation of setbacks and open spaces are a major stumbling block to the free flow of pedestrian and vehicular traffic. Table 9.40 shows that 22.70% of respondents cited this problem, with the largest number in the COAs (24.76%) and NDAs (22.44%). It is ironic that this was raised by respondents in the zones most notorious for the usurpation of communal space, implying that this uncouth attitude towards the land was intentional since they are aware of the consequences. This explains why traders chose to spill their goods over to setback spaces in front of their shops while others use sidewalks, town squares and even road surfaces as trading points in defiance of the law, reducing or completely taking over circulatory space to the detriment of the populace. They even endanger themselves in the process. This negates certain tenets of planning including safety, convenience, compatibility, efficiency, liveability, inclusiveness and the best practices typical of a great place and expected of a capital city like Ado-Ekiti.

### **Declining health and wellbeing**

The third ranked effect of encroachment on setbacks and open spaces in Ado-Ekiti is declining health and living standards. Overall, 22.00% of the respondents were of the opinion that this was the case. These views were particularly prevalent in the COAs (Table 9.40). The spaces occupied are supposed to be maintained as green spaces. According to Carmona et al. (2003), if well

designed and landscaped these open spaces add visual interest and color to the environment, and as such benefit well-being. Moreover, green spaces have been proven to play important roles in the purification of air, removal of pollutants, in exerting cooling effects on the environment, and improving eco-friendliness, with positive effects on human health. This is currently not the case in Ado-Ekiti.

As noted earlier, illicit trading activities spillover to roadsides and makeshift structures are constructed on drainage channels and road surfaces. Facilities such as toilets, potable water, refuse disposal, warehouses, and loading and offloading bays that would be expected in a planned modern market are not available. This suggests that traders use their immediate surroundings to answer the call of nature and for waste disposal, threatening the environment with huge carbon footprints and jeopardizing the health of residents.

### **Threat to safety and security**

The data show that 17.37% of the respondents felt that encroachment on setbacks and open spaces in the state capital pose serious threats to security and the safety of lives and property.



Source: Field survey, July 2015.

Figure 9. 85: Willful utilization of setbacks and air spaces around building for illegal substandard structures, which choke up the spaces between the buildings. The implication is that setbacks and outdoor spaces are grossly reduced below acceptable standards around buildings in Oke-Ila Street.

The unregulated influx of people into the city in search of better economic prospects is a serious challenge. Since there is no check on this movement or registration of those engaged in the

informal sector, criminals could hide under this guise to pursue nefarious activities. Encroaching poses risks to traders and buyers alike. The makeshift structures and kiosks are indiscriminately located along roadsides and are prone to the risk of traffic accident. They prevent a clear view of the environment, and provide hideouts for criminals. Furthermore, overcrowding, as illustrated in Figure 9.86 raises the risk of quickly spreading fires.

### **Lack of relaxation and recreational opportunities**

Furthermore, 8.11% of the respondents linked encroachment on setbacks and open spaces to a lack of relaxation and recreational opportunities in the city. The majority were located in the NDAs (11.43% in the zone) and this view was held by 6.01% and 3.64% of the respondents in the COAs and PREs, respectively (see Table 9.40). The fact that that this issue was accorded less weight reflects that little value is placed on recreation in the city. The implication is that people do not cherish spaces reserved for setbacks and open spaces in the face of other pressing needs. This is a misplaced judgment with an escapist connotation. Oyelami (2005) noted the negative effects of the use of artificial objects around homes on human health. Jagboro (2000) showed that soft landscaping reduces environmental pollution and by extension, impacts positively on the health, productivity and recreation of urban dwellers. Thus, the more open spaces and setbacks are treated as green spaces, the higher the levels of satisfaction derived from such space for relaxation and recreational activities.

### **Other responses**

Others factors that cause encroachment on setbacks only accounted for 0.26% of the responses and are considered too insignificant for discussion.

### **Government response to encroachment on setbacks and open spaces in the city**

The respondents were asked to assess government's reaction to encroachment on setbacks and open spaces in the city. Table 9.41 presents the data. The findings are discussed below.

### **Prosecution of offenders**

The findings show that the government has a lukewarm attitude towards the prosecution of those guilty of encroaching on public spaces. This was stated by 14.95% of the respondents, and cuts

across the three morphological zones with the highest response rate of 32.05% within the PREs and less frequent response at 8.37% in the COAs as shown in the table. Section 43 subsection 1(a) and (b) of the Land Use Act No 6 of 1978 makes it unlawful for any person in an urban area to erect any building, wall, fence, or other structure upon, or enclose, obstruct, cultivate or do any act on or in relation to any land, whether or not the person holds a title to the land without approval from the Governor. In an urban area like Ado-Ekiti the expression ‘any land’ includes setbacks and open spaces, whether incidental or organized. Subsection 3 provides that an offence is punishable on conviction with one year imprisonment or a fine of N5,000.00 (FGN, 1978).

<b>Zone/Responses of Government to Encroachment</b>	<b>Prosecution of Offenders</b>	<b>Demolition of Encroached Development</b>	<b>Education of Offenders and Public</b>	<b>Managing Encroachment</b>	<b>Ignoring Encroachment</b>	<b>Others</b>	<b>Total</b>
<b>COAs</b>	105	297	33	120	699	-	<b>1254</b>
<b>% within zone</b>	8.37	23.69	2.63	9.57	55.74	-	<b>39.14</b>
<b>NDAAs</b>	224	402	138	237	478	3	<b>1482</b>
<b>% within zone</b>	15.12	27.13	9.31	15.99	32.25	0.20	<b>46.25</b>
<b>PREs</b>	150	72	-	45	201	-	<b>468</b>
<b>% within zone</b>	32.05	15.38	-	9.62	42.95	-	<b>-</b>
<b>Total</b>	<b>479</b>	<b>771</b>	<b>171</b>	<b>402</b>	<b>1378</b>	<b>3</b>	<b>3204</b>
<b>% Total</b>	<b>14.95</b>	<b>24.06</b>	<b>5.34</b>	<b>12.55</b>	<b>43.01</b>	<b>0.09</b>	<b>100.00</b>

Source: Field Survey, 2015

Table 9. 41: Governmental response to encroachment on setbacks and open spaces in the morphological zones of Ado-Ekiti.

In similar manner, section 2, subsection (1) and section 11 of the Building and Sub-division Regulation of 1984, applicable to Ekiti and Ondo States prohibits any construction without due permission. Section 27, subsection (1) of Ekiti State Urban and Regional Planning and Development Law No 3 of 2011 provides for setback provision while section 28, subsection (6) makes it mandatory to obtain a development permit prior to any building or operation in the State. Section 6.3 subsections 6.3.22, 6.3.44 of the National Building Code places a total ban on encroachment on setbacks and open spaces and subsection 6.3.3.10.5 compels developers to obtain a development permit before the commencement of any construction.

Given that these laws apply nationwide, including Ekiti State, failure to prosecute offenders reflects ineptitude on the part of government, which seems to be shying away from its responsibilities. It was established that people capitalize on this inertia to perpetrate acts of space contestation and contravention in all the three zones of the study area. This has led to the high

levels of encroachment on setbacks and open spaces in Ado-Ekiti thereby compromising the entire environment, and robbing the cityscape of green spaces, orderliness and comfort.

### **Demolition of encroaching development**

Only 24.06% of the respondents confirmed that structures that encroach on setbacks and open spaces in the city are demolished. In terms of the zones, 23.69% and 27.13% of the respondents in the COAs and NDAs, respectively, agreed with this statement. These are the zones known to suffer from levels of encroachment as high as 90%. This shows, beyond doubt, that the laws that provide for the restriction and removal of illegal developments are not enforced. These include section 26 of the Ekiti State Urban and Regional Planning and Development Law No 3 of 2011 subsection (i), on functions of the Planning Permit and Building Control Agency, which empowers the Agency to achieve zero tolerance of illegal development, and subsection (o), which gives legal muscle to the Agency for the removal of illegal and non-conforming buildings. The Agency is failing to carry out its mandate and in the process is encouraging some to pursue illegal activities to the detriment of the city environment and teeming populace.

### **Education of offenders and public enlightenment**

The study also revealed that little or no effort is made to educate offenders and the public on the negative consequences of encroaching on setbacks and open spaces in the city. It should be noted that the 5.34% of the respondents that agreed with this statement lived in the COAs (2.63%) and NDAs (9.3%), which are the zones with the highest levels of encroachment. It was established that lack of public education could affect compliance with statutory provisions on development.

### **Management of encroachment**

Moreover, Table 9.41 shows that 12.55% of the respondents felt that government does attempt to manage encroachment on setbacks and open spaces in the city. The highest response rate of 15.99% was obtained in the NDAs that suffer the highest levels of encroachment while the COAs and the PREs recorded a similar frequency of 9.57% and 9.62%, respectively. This implies that the government tries to regulate encroachment. However, piecemeal efforts are not sufficient and are also unfair as some are punished and others get away with it. Rather than the culprit being punished, the illegal development should be demolished to prevent a situation

where planning chases instead of precedes development. Apart from sending wrong signals to other developers, the encroached space will be lost, reducing the spaces available for greening the city.

### **Ignoring encroachment**

The research exposed the weakness of the Planning Permit and Building Control Agency in tackling encroachment on setbacks and open spaces. A majority of 43.01% of the respondents with the highest proportion in the COAs (55.74%) confirmed that government organs ignore encroachment on major traffic corridors in the city. The Agency seems to be overwhelmed and has thus decided to disregard the incessant usurpation of open and setback spaces. Commercial activities that spill over to the roadway on some busy streets like Ijigbo, Ajilosun, Old Garage, Orereowu, Okeyinmi, Ighehin, Ojumose, Eregun, Ogbon-Oba, Okesha and Bashiri are a feature of the old and new development areas. The GRA and State Housing Estate are not exempt. This suggests that the Agency lacks human and material resources to curtail this menace that is threatening the sustenance of the city landscape and environment. The option of looking the other way is even worse than the option of management considered earlier.

The results range from disorderliness and pollution to scanty or outright lack of greenery, especially in the built-up areas of the core and new development areas. In its current state, the city environment offers no green landscape or dedicated green areas that could soften the concrete jungle or offer protection against solar radiation, which aggravates the heat island syndrome in the hot tropical climate. Rising temperatures in the dry season cause serious discomfort among urban inhabitants and contribute to climate change. Consequently the city environment is neither people-friendly nor eco-friendly and lacks the qualities of a great place.

### **Other governmental efforts**

At 0.09%, no other significant efforts were cited by the study respondents.

### 9.3.4 Effect of statutory provisions and extant rules on development control of setbacks, open spaces and green landscaping

Having examined setback and open space characteristics in the three morphological zones, it is important to assess the extent to which statutory provisions have influenced the development and maintenance of public spaces and greenery in the capital city of Ado-Ekiti.

#### Awareness of physical planning regulations on setbacks, open spaces and green landscaping

An assessment was carried out to determine the level of awareness of physical planning laws, regulations and codes with regard to the provision and maintenance of setbacks and open spaces, as well as green landscaping provision and utilization around buildings. Table 9.42 presents the results. A majority of 72.00% of the respondents claimed awareness of physical planning regulations on issues relating to setbacks, open spaces and green landscaping provision around

Zone/Planning Regulation Awareness	Aware	% within zone	No response	% within zone	Not aware	% within zone	Total	% of Total
COAs	815	64.99	163	13.00	276	22.01	1254	38.70
NDA's	1074	71.03	181	11.97	257	16.99	1512	46.67
PREs	444	93.69	11	2.32	19	4.01	474	14.63
<b>Total</b>	<b>2333</b>	<b>72.00</b>	<b>355</b>	<b>10.96</b>	<b>552</b>	<b>17.04</b>	<b>3240</b>	<b>100.00</b>

Source: Field Survey, 2015

Table 9. 42: Level of awareness of physical planning laws, regulations and codes with regard to setback and open space provision and maintenance, as well as green landscaping provision and utilization around buildings.

buildings. The highest level of awareness of 93.69% was recorded in the PREs. This is not surprising as this zone has the highest literacy level in the study area, and the lowest incidence of encroachment. Ironically, the NDAs which also recorded very high levels of awareness (71.03%) of statutory requirements on setbacks, open spaces and greening, have the highest level of encroachment and illegal development and scant greening, while the COAs, with an awareness level of 64.99% despite low literacy rates, have a relatively high level of encroachment.

This suggests that, while most respondents are aware of the law, many continue to encroach on setbacks and open spaces. This indicates brazen defiance and impunity, cashing in on the weakness of the development control agency that ignores or accommodates illegal occupation, the implications of which were earlier established in the discussion.

On the other hand, 17.04% of the respondents stated that they were not aware of any regulations on setbacks, open space and green landscaping. The lowest level of ignorance of the law at 4.01% was found in the PREs while the COAs had the highest response rate of 22.01%, tallying with high levels of illiteracy in this zone. The figure for the NDAs that have the highest levels of encroachment is 16.99%. Since most of the respondents were aware of the law, the level of encroachment should be commensurately low. Instead, it is generally high. This further highlights that those that are aware of the law deliberately violate it.

Illegal actions that seek to satisfy individuals' immediate economic needs inflict collective pain. Some 10.96% of the respondents did not respond to the question on levels of awareness. This implies apathy. Nonetheless, the percentage of respondents that professed ignorance of the law and those that did not answer the question only adds up to 28.00%, meaning that 72.00% were aware of legal provisions. Juxtaposed with the colossal 91.24% level of encroachment (the combination of very low, low, moderate, high and very high levels of encroachment on setbacks and open spaces in the entire study area), this is an obvious mismatch.

The study therefore confirmed that statutory provisions do not control development on setbacks and open spaces in the city. While most people are aware of the law, they continue to encroach on and develop setbacks and open spaces without government taking any action. The laws are thus as worthless as the paper on which they are printed; they are like a toothless dog that can bark but not bite. This is having disastrous consequences for the city landscape.

### **Treatment of spaces around buildings on plots in the residential districts of the city.**

Given that the law provides that the maximum plot coverage of buildings on any parcel of land should not exceed 40% to allow for landscaping and other surface treatment, and the developer's responsibility to plant ornamental trees on the sidewalk abutting such property as a prerequisite for the granting of a development permit, the remaining spaces around buildings in the study area were examined. The data in Table 9.43 shows, that a large proportion (24.89%) of spaces around buildings has purely hard landscaping. The majority are found in the COAs (27.95) and NDAs (27.82%) with few (7.79%) in the PREs.

Zone/Space Treatment around Building	Hard Landscaping Only	Soft Landscaping Only	More of Hard than Soft Landscaping	More of Soft than Hard Landscaping	Neither Hard nor Soft Landscaping	No Response	Total
COAs	327	216	171	53	204	199	<b>1170</b>
% within zone	27.95	18.46	14.61	4.53	17.44	17.01	<b>37.72</b>
NDAAs	409	245	84	47	564	121	<b>1470</b>
% within zone	27.82	16.67	5.71	3.20	38.37	8.23	<b>47.39</b>
PREs	36	155	144	102	25	-	<b>462</b>
% within zone	7.79	33.55	31.17	22.08	5.41	-	<b>14.89</b>
<b>Total</b>	<b>772</b>	<b>616</b>	<b>399</b>	<b>202</b>	<b>793</b>	<b>320</b>	<b>3102</b>
% Total	<b>24.89</b>	<b>19.86</b>	<b>12.86</b>	<b>6.5</b>	<b>25.56</b>	<b>10.32</b>	<b>100.00</b>

Source: Field Survey, July 2015

Table 9. 43: Landscape treatment of spaces around building on plots in the capital city.



Source: Field Survey, July 2015

Figure 9. 86: Some buildings have the remaining spaces around them covered solely with soft landscaping, as are most commonly found in the planned estates at 33.55%, the highest in the study.

Only 19.86% of the remaining spaces around building are covered solely with soft landscaping; this is most common in the PREs at 33.55% (see Figure 9.86), while the COAs and the NDAs had 18.46% and 16.67%, respectively. In terms of spaces around buildings treated with more hard, than soft landscaping, these amount to 12.86% and are also most common in the PREs at 31.17%, with the figures in the COAs and NDAs standing at 14.61% and 5.71%, respectively. The reverse option of more soft landscaping elements than hard ones stood at a mere 6.5% across the entire study area; but was more prevalent at 22.08% in the PREs; and scanty in the COAs and NDAs at 4.53% and 3.20%, respectively.

Furthermore, 25.56% of the spaces around buildings in the study area are treated to neither hard nor soft landscaping elements. Rather these vast outdoor spaces are left bare, having been rid of their vegetative cover prior to construction, especially in the NDAs with 38.37% occurring around 5.64 houses, the largest in the sample and the entire study area, while the COAs had 17.01% bare surfaces with the least frequency of 5.4% in the PREs. However, 10.33% of the respondents did not respond to this question, suggesting a level of apathy.

Hard landscaping of surfaces is thus preferred to soft landscaping. It was found that, cumulatively, soft landscaping featured on 26.36% of spaces around buildings compared to 63.3% for hard landscaping. This confirms the findings of an earlier study (Ojo-Fajuru and Adebayo, 2014a), which noted the preponderance of hard landscaping elements such as concrete paving, interlocking tiles, cobbles stones and exposed surfaces in the city. This situation persists despite the fact that soft landscaping is favored by law, once again suggesting a lack of enforcement of the relevant statutory provisions. The implication is that the delineated study area, and by extension, the city (with the exception of the greener PREs) has insufficient plant life or greenery to protect people against the intensively high solar radiation in this hot and humid climate. Hard surfaces absorb and radiate heat, causing discomfort. This exacerbates the heat island syndrome that contributes to global warming and climate change, negatively impacting liveability and environmental quality at the expense of place-making in the capital city of Ado-Ekiti.

### **Assessment of the quality of the environment in Ado-Ekiti**

Table 9.44 shows that 9.32% of the respondents felt that the quality of the city environment is very poor, made up of 12.44% in the COAs and 9.63% in the NDAs, with none in the PREs. Furthermore, 10.22% of the respondents assessed environmental quality as poor (COAs - 10.13%, NDAs - 11.89% and PREs - 5.13%). The majority (52.91%) of the study respondents described the quality of the city environment as fair (COAs - 61.64%, NDAs - 48.61% and PREs - 43.3%), while 22.83% felt that it was good (PREs - 39.47%, NDAs - 25.43% and COAs - 13.40%). Only 3.59% characterized the quality of the city environment as very good, with the large majority (11.75% in the zone) in this category residing in the PREs, with negligible levels of agreement in the NDAs (3.19%) and COAs (1.04%).

Zone/Assessment of City's Environmental Quality	Very Poor	Poor	Fair	Good	Very Good	No Response	Total
COAs	156	127	773	168	13	7	1254
% within zone	12.44	10.13	61.64	13.40	1.04	1.36	38.85
NDAAs	145	179	732	383	48	19	1506
% within zone	9.63	11.89	48.61	25.43	3.19	1.26	46.65
PREs	-	24	203	186	55	-	468
% within zone	-	5.13	43.38	39.74	11.75	-	14.50
<b>Total</b>	<b>301</b>	<b>330</b>	<b>1708</b>	<b>737</b>	<b>116</b>	<b>36</b>	<b>3228</b>
<b>% Total</b>	<b>9.32</b>	<b>10.22</b>	<b>52.91</b>	<b>22.83</b>	<b>3.59</b>	<b>1.12</b>	<b>100.00</b>

Source: Field Survey, July 2015

Table 9. 44: Assessment of the quality of environment across the morphological zones of Ado-Ekiti.

Similarly, very few (1.02%) respondents were silent on this issue. This suggests that overall, environmental quality is generally fair. However, cross tabulation with the encroachment variables shows that this opinion is mainly held in zones with high levels of encroachment on public spaces that had caused environmental degradation.

### 9.3.5 Governmental efforts to reclaim and utilize setbacks and open spaces in the city

Previous sections provided evidence on contraventions and encroachment on setbacks and open spaces in the city. The law and the powers of the development control agency have been evaluated. The study respondents were also asked to assess the government's efforts to reclaim and utilize setbacks and open spaces in an appropriate manner that will restore orderliness to the city.

#### Assessment of government's efforts to reclaim setbacks and open spaces in the city

Deriving from survey results presented in Table 9.45, it is shown that very few respondents (5.14%) rated government's efforts to reclaim encroached setbacks and open spaces as very poor. No respondent agreed with this statement in the PREs, while the response rates for the COAs and NDAs were 5.11% and 6.77%, respectively. A much larger percentage of respondents, constituting 20.18% rated such efforts as poor, particularly in the COAs (19.81% in the zone) and NDAs (25.56%), both of which have suffered high levels of encroachment. On the other hand, only 3.85% of the respondents in the PREs subscribed to this opinion.

Furthermore, 52.71% of the respondents described the government's efforts to reclaim encroached spaces as fair. The COAs took the lead with 54.72% of the respondents in this zone

Area	Very poor	%	Poor	%	Fair	%	Good	%	Very Good	%	Total	%
COA	65	5.11	252	19.81	696	54.72	223	17.45	36	2.83	1272	39.19
NDA	102	6.77	385	25.56	768	50.97	210	13.94	41	2.72	1506	47.39
PRE	--	---	18	3.85	247	52.78	192	47.44	11	2.35	468	14.42
<b>Total</b>	<b>167</b>	<b>5.14</b>	<b>655</b>	<b>20.18</b>	<b>1711</b>	<b>52.71</b>	<b>625</b>	<b>19.25</b>	<b>88</b>	<b>2.71</b>	<b>3246</b>	<b>100.00</b>

Source: Field Survey, July 2015

Table 9. 45: Assessment of government efforts in reclaiming setbacks and open spaces across the morphological zones of Ado-Ekiti.

concurring with this statement. This was followed by 19.25% of the respondents that rated such efforts as good (the majority in the PREs - 47.44%, with 17.45% in the COAs and 13.94% in the NDAs). An insignificant 2.71% of the respondents felt that government efforts to reclaim usurped spaces in the city are very good.

The implication is that, just as the government was lackadaisical in losing them, it is not doing well in its effort to reclaim lost spaces. The combination of very poor and poor ratings adds up to a significant 25.32%. These ratings were mainly made by respondents residing in the COAs and NDAs where encroachment is common.

The fact that, just over 50% of the respondents rated the government's efforts as fair does not suggest credible performance or that it is winning the battle. The cumulative score of 21.96% for good and very good indicates that much remains to be done to achieve success and zero tolerance of encroachment in whatever form.

### **Effects of the reclamation of setbacks and open spaces in the city**

The reclamation of setbacks and open spaces initiated by the immediate past administration led by former State Governor, Dr. Kayode Fayemi, has had some effects. Table 9.46 below shows that 14.11% of the respondents claimed that they were affected by the loss of either part of or their entire building. The highest response rate of 20.08% was recorded in the PREs, with 16.59% and 10.15% in the COAs and NDAs, respectively. In similar vein, 16.06% of the respondents had lost their fences to the exercise, especially in the PREs with a 54.55% response rate in the zone. In the NDAs, 11.30% of the respondents confirmed the loss of a fence while the

corresponding figure in the COAs is 6.94%. This implies that more fences have been constructed illegally in the PREs. This is not surprising as these houses were not fenced when they were handed over to beneficiaries.

Area	Loss of build-ings	%	Loss of plot of land	%	Loss of shops	%	Loss of fence	%	Others	%	Total	%
<b>COA</b>	203	16.59	223	18.22	443	36.19	85	6.94	270	22.06	<b>1224</b>	<b>38.55</b>
<b>NDA</b>	150	10.15	355	24.02	409	27.67	167	11.30	397	26.86	<b>1478</b>	<b>46.55</b>
<b>PRE</b>	95	20.08	78	16.49	42	8.88	258	54.55	-	-	<b>473</b>	<b>14.90</b>
<b>TOTAL</b>	<b>448</b>	<b>14.11</b>	<b>656</b>	<b>20.66</b>	<b>894</b>	<b>28.16</b>	<b>510</b>	<b>16.06</b>	<b>667</b>	<b>21.01</b>	<b>3175</b>	<b>100.00</b>

Source: Field Survey, July 2015

Table 9. 46: Effects of setbacks and open spaces reclamation across the morphological zones of Ado-Ekiti.

Home owners have constructed fences illegally within setback space to enhance their security and privacy. Those that lost plots of land during the government’s reclamation exercise made up 20.66% of the respondents in the study area. The NDAs recorded the highest percentage of 24.02%, with 18.22% in the COAs and 16.49% in the PREs. The findings also show that 28.16% of the respondents lost shops in this process. This is the highest frequency of response on the effects of setbacks and open spaces reclamation, which involved 894 structures in the delineated



Source: Field Survey, July 2015

Figure 9. 87: Setback spaces are indiscriminately used to display various articles of trade as practiced by Igbo traders in Ado-Ekiti.

study area. Most of those affected (36.19%) lived in the COAs, with 27.67% in the NDAs and only 8.88% in the PREs. This suggests that many of the structures illegally constructed on setbacks spaces were used for commercial activities, indicating the high degree of commercialization of available spaces, especially in the core and new development areas (see Figure 9.87), and confirming the findings of a recent study (Ojo-Fajuru & Adebayo, 2016). Finally, other effects of the reclamation exercise were cited by 21.01% of the responses. They include loss of access routes, damage to line drains, and disruption of facilities and amenities. These problems were cited only in the COAs (22.06%) and NDAs (26.86%). This suggests that there is a high degree of encroachment in the study area, especially in the COAs and NDAs. However, it was observed that most of the structures demolished in the course of this exercise were re-erected. A Deputy Director in the Urban and Regional Planning Unit of the Federal Ministry of Works and Housing, Federal Secretariat, Ado-Ekiti, who chose to remain anonymous, expressed concern about the current status of the reclamation and greening exercises. He pointed out that the present administration led by Governor Ayodele Fayose has virtually abandoned them in what seems like a political vendetta (see Figure 9.88).



Source: Field Survey, July 2015

Figure 9. 88: Carefully greened setbacks protected by colorful railings are now overgrown with weeds along Ikere Road in the new development area of Ado-Ekiti.

It was observed that the greened setbacks protected by colorful railings are overgrown with weeds as shown in see Figure 9.87, while in some areas the space is used to display various articles of trade. Some of the railings have been removed and used to provide access over open drains to shops owned by Igbo traders (see Figure 9.79). State government officials seem helpless and declined to comment on this issue for reasons of job security and oaths of secrecy.

### **The potential utilization of reclaimed setbacks and open spaces for greening to improve the environmental quality of the city**

The respondents were also asked if the utilization of reclaimed setbacks and open spaces for greening, as stipulated by law, would improve the environmental quality of the city. The responses were measured using a Likert Scale and are presented in Table 9.47. It shows that 24.28% of respondents strongly agreed, while the majority constituting 57.23% in the entire study area agreed that the quality of environment would be enhanced if the reclaimed setbacks were treated as green areas.

<b>Zone/Utilization of reclaimed setback for greening</b>	<b>Strongly agree</b>	<b>Agree</b>	<b>Undecided</b>	<b>Disagree</b>	<b>Strongly disagree</b>	<b>Total</b>
<b>COAs</b>	253	732	101	199	-	<b>1285</b>
<b>% within zone</b>	19.69	56.96	7.86	15.49	-	<b>39.30</b>
<b>NDAAs</b>	343	876	102	150	41	<b>1512</b>
<b>% within zone</b>	22.69	57.94	6.75	9.92	2.71	<b>46.24</b>
<b>PREs</b>	198	263	12	-	-	<b>473</b>
<b>% within zone</b>	41.86	55.60	2.54	-	-	<b>14.46</b>
	<b>794</b>	<b>1871</b>	<b>215</b>	<b>349</b>	<b>41</b>	<b>3270</b>
<b>% of total</b>	<b>24.28</b>	<b>57.23</b>	<b>6.57</b>	<b>10.67</b>	<b>1.25</b>	<b>100.00</b>

Source: Field Survey, July 2015

Table 9. 47: Propensity of the utilization of reclaimed setbacks and open spaces for greening to improve environmental quality in Ado-Ekiti is approved by the vast majority of the people.

On the other hand, 10.67% of the respondents disagreed and 1.25% strongly disagreed with this statement, constituting 11.92% of the sample, while 6.57% remained neutral. It is thus clear that the overwhelming majority of the respondents support the greening the city. It is noteworthy that those that were not in agreement lived in the COAs and NDAAs where literacy levels are the lowest in the study area. This suggests a strong relationship between the level of education and the perception of environmental quality, thereby corroborating the views of Agbanusi (2004) that

educationally empowered and well-informed citizenry tends to build environmentally conducive community that ensures cleanliness and healthy living.

### 9.3.6 People’s priorities and participation in the greening program

It was important to determine the respondents’ priorities and willingness to participate in a greening program in order to ensure its success.

#### Exclusive usage of reclaimed setbacks for greening

The respondents were asked whether they felt that the reclaimed setbacks and open spaces should be exclusively devoted to greening the city. Table 9.48 presents the responses based on a Likert Scale. It shows, that 15.12% of the respondents strongly agreed that the reclaimed setbacks and open spaces should be exclusively devoted to greening while 48.27% agreed. This adds up to 63.39%, a clear majority, which cuts across the three morphological zones. While the percentage is somewhat lower, this fits with the number of respondents (81.51%) that indicated that they favoured the greening of reclaimed spaces to improve the quality of the city environment.

Area	Strongly agree	%	Agree	%	Undecided	%	Disagree	%	Strongly disagree	%	Total	%
COA	121	9.43	539	42.45	120	9.43	473	37.26	19	1.42	1242	39.41
NDA	234	15.79	803	54.25	193	12.96	209	14.17	43	2.83	1482	45.91
PRE	133	27.85	216	45.57	5	1.27	121	25.32	-	-	474	14.68
<b>TOTAL</b>	<b>488</b>	<b>15.12</b>	<b>1558</b>	<b>48.27</b>	<b>318</b>	<b>9.85</b>	<b>803</b>	<b>24.88</b>	<b>62</b>	<b>1.92</b>	<b>3228</b>	<b>100.00</b>

Source: Field Survey, July 2015

Table 9. 48: Opinions on the exclusive usage of reclaimed setbacks and open spaces for greening in the city.

On the other hand, 24.88% the respondents disagreed and 1.92% strongly disagreed that the reclaimed setbacks should be used exclusively for greening. This adds up to 25.80%, more than double the number of respondents that previously disagreed that setbacks should be used to green the city. Thus, while some of the respondents supported greening, they did not feel that the setbacks should be used only for this purpose. Moreover, 9.85% of the respondents were undecided on this issue, compared to 6.57% in the former assessment. It can thus be concluded that the majority of the respondents favoured the transformation of reclaimed spaces in their

entirety to green areas. Nonetheless, there is a need to strike a balance that would achieve a conducive and satisfying city environment for all.

**Uses to be incorporated into the greening of reclaimed setbacks and open spaces of the city.**

Having established the majority opinion advocating absolute greening in the city, as well as the significant minority dissentients, the planning principle of involving the people for the collective benefit of all becomes relevant. Rather than towing the political line that the ‘majority have their way, while the minority have their say’, the converse is hereby applicable such that the majority will have their say, while minority have their way too. This is to evoke inclusiveness in the issue of city greening to ensure social, economic and environmental sustainability.

To this end, the dissenting minority were asked to suggest other uses that could be incorporated into the greening of reclaimed setbacks and open spaces. As shown in Table 9.49, recreational use topped the list, with 27.52% of the sample, mainly from the COAs (32.79%), supporting this option. Recreational use is compatible with green areas.

Area	Recreational	%	Commercial use	%	Services	%	Parking	%	Others	%	Total	%
COA	240	32.79	222	30.33	78	10.66	174	23.77	19	3.28	732	47.29
NDA	147	21.30	144	20.87	192	27.83	195	28.26	12	1.74	690	44.57
PRE	39	30.95	36	28.57	-	-	51	40.48	-	-	126	8.14
<b>TOTAL</b>	<b>426</b>	<b>27.52</b>	<b>402</b>	<b>25.97</b>	<b>270</b>	<b>17.38</b>	<b>420</b>	<b>27.13</b>	<b>31</b>	<b>2.00</b>	<b>1548</b>	<b>100.00</b>

Source: Field Survey, July 2015

Table 9. 49: Other uses to be incorporated into the greening of reclaimed setbacks and open spaces program in Ado-Ekiti.

The use of reclaimed spaces for parking was supported by 27.13% of these respondents with the majority of this opinion coming from 40.48% of samples from the PRE. While 25.97% advocated the inclusion of commercial use in such spaces, 17.38% felt that services should be prioritized in the greening exercise. Majority of the demand for commercial use came from the COAs (30.33%), while 27.83% of responses from the NDAs formed the majority that favoured the inclusion of services in the green areas. There was no response supporting services and other uses from the PREs. Other suggested uses that made up only 2.00% of the responses included farming and gardening, which is also compatible with green areas.

These responses suggest that incorporating socio-economic uses in the greening program will maximize space utilization, enliven the green areas, and boost the city's economic base. Those using these spaces would also monitor that they are used properly and prevent abuse of the green areas. In this manner the primary objective of improving aesthetic and environmental quality will be achieved simultaneously with the social and economic objectives of sustainability, making the city landscape and environment clean, attractive, conducive, vibrant, dynamic, liveable, viable, convenient, inclusive and sustainable. This would upgrade the status of the capital city of Ekiti State to a green and great place.

### **Willingness to participate in the greening and transformation program and activities in the city.**

Public participation in the greening and transformation of the capital city would guarantee its success. A Likert scale was used to measure the responses on the respondents' willingness to participate in such activities.

Area	Strong Willing	%	Willing	%	Not Sure	%	Unwilling	%	Strongly unwilling	%	Total	%
<b>COA</b>	215	17.14	780	61.90	157	12.38	90	7.14	18	0.43	<b>210</b>	<b>39.33</b>
<b>NDA</b>	348	23.58	811	54.88	216	14.63	72	4.88	29	2.03	<b>246</b>	<b>46.07</b>
<b>PRE</b>	121	25.64	336	71.79	5	1.28	-	-	6	1.28	<b>78</b>	<b>14.60</b>
<b>TOTAL</b>	<b>684</b>	<b>21.34</b>	<b>1926</b>	<b>60.11</b>	<b>378</b>	<b>11.79</b>	<b>162</b>	<b>5.06</b>	<b>54</b>	<b>1.75</b>	<b>3204</b>	<b>100.00</b>

Source: Field Survey, July 2015

Table 9. 50: Willingness of the people to participate in the greening and transformation program in Ado-Ekiti.

Table 9.50 shows that 21.34% of the respondents, mostly in the PREs (25.64%) are strongly willing to participate in the greening program, while 60.11% with the majority also coming from the PREs (71.79%) are willing. This adds up to 81.43% of the respondents that are willing to take the city to a higher level by participating in spatial transformation. This figure is slightly higher than the 73.03% level of willingness established in an earlier study in Ado-Ekiti which was higher than in Akure (Ojo-Fajuru and Adebayo, 2014b). Furthermore, 11.79% of the respondents were not sure whether or not they would be willing to participate in a greening

exercise, while 5.06% were unwilling and an insignificant 1.75% was strongly unwilling. This adds up to only 6.81% of the respondents that was reluctant to take part in such a program.

The research established that most of the people are ready to participate actively in the renaturalisation and improvement programme signaling great potentials for the greening and place-making agenda in Ekiti State's capital city.

## CHAPTER TEN

### CONCLUSION AND RECOMMENDATIONS

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#### 10.0 Introduction

This chapter presents a summary of the thesis highlighting its findings, and policy recommendations and suggestions for further research. It presents a detailed discussion and evaluation of a model to forestall indiscriminate encroachment on open spaces and setbacks, green the city, maintain green spaces as great places, and sustain the overall city landscape and environment, thereby addressing the problems and questions raised by the research study.

#### 10.1 Summary of findings

In terms of the spatial structure of the study area, the study revealed the dominance of residential land use. Three distinctive morphological zones were identified in Ado-Ekiti. The lack of planning in the core and new development areas contrasts sharply with the PREs on the peri-urban fringes of the city. Beyond this, the city expands uncontrollably into the surrounding region with attendant vegetal destruction and no conscious replacement, resulting in insufficient green spaces.

The baseline survey that examined the socio-economic attributes of residents in the study area found more males than females in the sampled districts. Moreover, since household heads were preferred as study respondents, more male than female residents participated in the study. The majority of the respondents fell within the 30 to 59 years age group constituting 63.03% of the sample in the COAs, 70.41% in the NDAs, and 83.54% in the PREs. This is the economically productive group. More respondents in the core areas than in the PREs fell into the older age group; older people tend to be more conservative in their outlook. Married people made up 69.43% of the respondents; this is likely to lead to a steady natural population increase in the study area.

Literacy levels are relatively high in the study area, especially in the GRAs and housing estates where civil servants, professionals and high-class citizens live. However, they are lower in the

NDA and lowest in the COAs in the older parts of the city where a larger proportion of the aging population resides. Employment and income levels are highest in the PREs, moderate in the NDAs, and comparatively low in the COAs, while informal activities are the predominant occupation. Correlation of educational background and income revealed that respondents with no formal education and those with primary education only, mainly found in the COAs fell within the lowest income category. Respondents with tertiary education dominate the PREs where those within the highest income bracket live.

Determination of the proportion of land devoted to open spaces and green landscaping in the study area required an evaluation of setbacks and open space characteristics, and patterns of encroachment. The findings revealed that the majority of buildings are used for residential purposes, while commercial and mixed uses also flourish alongside a few industrial, institutional, religious, and recreational uses and open spaces. Furthermore, 25.70% of the buildings are located on primary distributors such as the dual roadways and 19.18% are found along secondary/collector roads, while a substantial 55.12% are situated on tertiary access roads.

It was established that small size plots far outnumber medium and large sized ones in the core and new development areas that account for 85.64% of the study area. This highlights the lack of planning and high density in the built up areas. This situation is exacerbated by the fact that only 9.94% of the houses in the city met the legal requirement of not more than 40% plot coverage, while the vast majority (90.06%) falls short of this requirement, indicating a compliance rate of 11.04%. This means that the urban landscape lacks open spaces around buildings. Moreover, only 47.86% of the respondents received planning permission from the appropriate authority, while 21.26% did not and a startling 30.85% of respondents stated that they were not aware of the need to apply for planning permission, adding up to 52.11% of respondents with no approved plans. This implies flagrant impunity in terms of set standards and an overcrowded environment.

It is therefore not surprising that the study found that houses with less than 4.5m minimum front setbacks and not up to 3m left side, right side, and rear standard air spaces made up about two-thirds of the sampled buildings in the city. This applied to more than two-thirds of the buildings in the core areas, nearly half in new development areas, and about one-quarter in planned estates.

Between a third and a quarter of the buildings had minimum front setbacks of 4.50m and left side, right side, and rear air spaces measuring 3m and more as required by law. This was more likely in the planned estates, less visible in the NDAs and rare in the core/old areas. This situation led to overcrowding and a lack of ventilation and light as well as drastically reduced or a total lack of open space for landscaping in the inner city.

Although 94.05% of houses in the study are located along a drainage channel, only a handful (2.28%) is located along water bodies like streams and rivers. It was established that more than 50% of these houses are located less than 4.5m from drainage channels and water bodies. Only 47.22% of the buildings met the statutory requirement of 4.5 to 29.9m setbacks, while 2.13% have setbacks of 30m or more. This suggests outright non-compliance with statutory guidelines, which is rampant in the unplanned older core and new development areas, and causes water pollution and environmental degradation. Solid, liquid and human waste is discharged into the channels resulting in siltation that reduces capacity and causes flooding when it rains. Similarly, most of the buildings examined fall short of the statutory requirements on setbacks to power transmission lines. Houses are erected close to the power lines under which informal activities are carried out unchecked, endangering lives and property. Encroachment on open spaces that are supposed to be preserved as green spaces along channels and power lines denies the city greenery, aesthetics, comfort, liveability and the potential to be a great place.

It was also found that 53.14% buildings' setbacks to the road, drains and water bodies or power lines, as well as air spaces around the buildings are used for one form of development or another. Contrary to various national state laws, the majority of these (78.73%) did not obtain approval from the relevant authorities. Indeed, some commercial activities extend beyond drainage channels and threaten to block roadways.

While setbacks and air spaces are expected to be intact and maintained as greenery, they were subjected to one kind of treatment or another. Only 16.21% of the houses examined, mainly in the PREs, have setbacks with green landscaping elements such as grass, shrubs and flowers. Paving was the most common treatment, especially in the older and unplanned zones, amounting to 31.27% in the study area. Furthermore, 24.39% of setbacks were bare and untreated, while

4.77% were overgrown with weeds, and 7.56% were strewn with refuse or used as refuse dumps. However, no dirty, littered setbacks were found in the PREs. The hard surfaced setbacks and airspaces that predominate in the study area are sources of heat absorption, storage and radiation that aggravate discomfort in the hot tropical climate. This is exacerbated by a lack of adequate greenery and impacts negatively on the people and the environment.

It was also found that setbacks that were purported to have not been developed are used to store building material. Some residents use them for farming (1.90%) or as horticultural gardens (7.36%) cumulatively adding up 9.26%, which are compatible with greening. Thus, 90.74% of the respondents were not compliant with the laws on setbacks. Furthermore, 81.43% of the respondents did not obtain development permits for the uses identified within setbacks and air spaces in the study area. Only 22.24% confirmed that they obtained permits for the usage of their building setback, which they earlier claimed to be unoccupied.

The respondents were aware of the impact of this situation, with 61.27% affirming the gross deficiency of organized open spaces. Further examination of available open spaces revealed different types ranging from naturally occurring incidental open spaces, to undeveloped plots, commercial open spaces and religious open lots. Commercial open spaces occupied 25.12% of the study area, with recreational open space at just 12.94% including playgrounds and football pitches belonging to educational institutions. The relatively few historical open spaces (at 6.3%) and the indiscriminate location of religious open spaces are features of the city.

In terms of ownership structure, 25.63% of open spaces in the city are publicly owned, 19.29% are held under public-private partnerships, 7.11% are held by corporate bodies or individuals, and 44.76% belong to private partnerships. Organized recreational open spaces that are well landscaped and furnished were found to be very scarce, amounting to 4.57%, with landscaped but unfurnished open spaces at 10.66%, and those left bare making up 32.99%. The latter are susceptible to erosion and aggravate heat in the urban center, contributing to climate change. Moreover, 15.48% of these open spaces were overgrown with weeds while 10.91% are generally unkempt, and littered with waste, refuse and faeces.

The qualitative evaluation of identified open spaces revealed diverse facilities and activities. The 45-year-old Oluyemi Kayode Stadium Complex is the highest level of organized open space in Ekiti State. It is publicly owned, equipped and operated and offers a wide range of indoor/outdoor and active/passive recreation. The Fajuyi Memorial Park is well landscaped and offers recreational facilities, but is normally locked. It was observed that non-recreational activities take place around the Park during the day to the extent that it is seriously threatened with encroachment from transport and commercial activities and its environment is filthy.

The Ekiti Golf Club is government owned but privately operated for members only, including the elite and top government officials. It is fully equipped for indoor and outdoor as well as active and passive recreation activities. The much older Inland Club in Okesa residential district is a social organization that is also reserved for the elite. It offers indoor and outdoor recreation. The Pace Recreation was intended to be a children's playground but was converted to a privately operated park that is open to the public. It has some elements of landscaping, but is not well vegetated. A fully privately owned recreational open space, the first in Ado-Ekiti, Ajibade Gardens is fenced, and tastefully landscaped with exotic flowering plant species, and well laid out facilities shaded by fully grown trees. The Gardens is a model for well-organized indoor, outdoor, active and passive recreational activities. Recreational opportunities also abound at more than 64 playgrounds and football fields within schools and colleges in different parts of the state capital that are mainly used by the youth. Other gaming and relaxation centers include more than 57 *ayo* sheds, several snooker booths and table tennis stands across the city. They are also meeting points for settlement of disputes and information dissemination and are best described as a "relaxation center and people's courts". Some have existed since the early 1930s.

It was observed that at a rate of 55.21%, there is a high tendency to encroach on or develop setbacks and open spaces into makeshift or permanent structures, mainly for commercial purposes, without permission. Informal commercial activities along major roads including sidewalks and even roadways was recorded in 59.44% and 61.02% of the core and new development areas, respectively, while the PREs had a low rate of 29.34%. Similarly, minor roads and access points were clogged with illegal commercial activities, confirming the findings of an earlier study. Furthermore, 15.17% of encroached setbacks and open spaces in the city are

used for residential purposes, while informal, illegal workshops and light industrial activities and services occupy 9.44%, with religious use at 8.56%. In addition, 5.12% of encroached setbacks and open spaces are used as refuse heaps, while sundry uses account for 6.5%.

Illegal and substandard developments endanger lives and property. Furthermore, greenery, circulation spaces, pedestrian movement and recreation areas are steadily reduced at the expense of environmental sustainability. As stated in the literature, the development conflict between equity and ecology, the property conflict between equity and economy, and the resource conflict between ecology and economy in the sustainability triangle (Campbell 1996) are evident in this city.

It was found that 92.24% of encroachment on setbacks and open space resources in Ado-Ekiti is illegal. The reasons identified by the respondents included ignorance (34.65%), while nearly a third (31.77%) blamed it the failure of government organs to ensure compliance with development regulations. Other factors identified were people's desire to improve their financial situation (15.19%), increasing human activities that requiring space (13.16%), and the nefarious activities of land speculators (4.48%).

Asked to describe the effect of this encroachment on the general structure of the city environment, 24.80% of the respondents were of the opinion that there were clear and grievous consequences, while 22.70% agreed that encroachment hinderers the free flow of pedestrian and vehicular traffic along movement lines in the city. Furthermore, 22.00% of the respondents linked encroachment on setbacks and open spaces to the downgrading of health and living standards, and 17.37% felt that it poses serious threats to the security and safety of lives and property as the makeshift structures inhibit clear views and provide hiding places for criminals. However, only 8.11% of respondents linked such encroachment to the hindrance of relaxation and recreational opportunities in the city.

In terms of the ineffectiveness of government action on encroachment, 14.95% of the respondents felt that the government lacks willpower and enthusiasm to prosecute proven offenders. Inertia encourages further encroachment on setbacks and open spaces. Only 24.06%

of the respondents confirmed that structures that encroach on setbacks and open spaces are demolished. This exposes the failure of the Agency to prevent or promptly remove illegal or encroaching structures or development as soon as they appear. It sends the wrong signal to residents; the result is commercial activities that have spilled over setbacks and drainage channels onto the roadways in busy streets. A lack of greenery to protect against solar radiation that aggravates the heat island syndrome in the hot tropical climate is the inevitable result.

While 72.00% of the respondents claimed awareness of physical planning regulations on setbacks, open spaces and green landscaping around buildings, the level of compliance is very low. Only 17.04% stated that they did not know about such regulations. This suggests that many that are aware of the law deliberately violate it. The study therefore confirmed that the statutory provisions are of no effect in the control of development on setbacks and open spaces in the city.

Furthermore, the study established a preference for hard landscaping elements as surface cover, with soft landscaping featuring in only on 26.36% of spaces around buildings as against 63.3% for hard landscaping. It is therefore surprising that 52.91% of the respondents felt that the quality of the city environment is fair, 10.22% rated it poor and 22.83% felt that it was good. Thus suggests that environmental quality is deemed generally fair.

On the other hand, 20.18% of the study respondents rated government's efforts to salvage encroached setbacks and open spaces as poor, with 53.71% assessing such efforts as fair and 19.25% good. This suggests that government is not performing well in its efforts to reclaim the lost spaces. It was ironic that those assessing the government's performance are also key players in encroachment. However, the reclamation exercise had some effect, with 14.11% of the respondents reporting that they had loss all or part of buildings, 16.00% fences; and 20.66% plots of land, while 28.16% reported that their shops had been demolished. Other effects, making up 21.06% of the total included loss of access routes, damage to line drains, and disruption of facilities and amenities. Most illegally built structures were used for informal commercial and other activities and resulted in the heavy commercialization and degradation of available spaces. It is clear that government needs to redouble its efforts to achieve zero tolerance of

encroachment, re-establish greenery in the environment and make the city a great liveable and inclusive place.

Finally, 24.28% of the respondents strongly agreed and 57.23% agreed that environmental quality would be improved in the city if reclaimed setbacks and open spaces are greened. Dissenting voices and the undecided made up 18.49% of the sample, implying that the vast majority support greening as an environmental quality improvement tool. Furthermore, 15.12% of the respondents strongly agreed and 48.27% agreed (adding up to 63.39%) that all reclaimed land should be established as green spaces. To promote inclusiveness for planning purposes, those that disagreed were given the opportunity to suggest alternative uses. These included recreational use (27.52%) parking (27.13%) commercial use (25.97%) services (17.38%), farming, and gardening (2.00%).

It is highly expected that an inclusive greening program will maximize space utilization, ensure proper monitoring and enhance the local economy. This would upgrade the status of the capital city of Ekiti State to a green and great place. There is hence a need to ensure effective public participation. Given the overwhelming support for the greening program, strong willingness was expressed to participate in such a program (a combined 81.43% of the respondents). This bodes well for successful transformation to reinvent Ado-Ekiti as a great, green city.

### **Proof of hypotheses and implication of a theory**

The stated working hypothesis that encroachment on setbacks and open spaces in regional capitals is a factor of urbanization, population explosion, human survival tendency, increasing spatial demand for land use activities, weak legislation, and lack of public enlightenment has been proven with findings from the case study of Ado-Ekiti. The establishment of these trends in the city proofs this generalization to the point of a theory. It is equally a true assertion that the reclamation, greening, and inclusive utilisation of encroached public spaces in the city will restore functionality and good quality urban environment, and thereby promote socio-economic and environmental sustainability in the capital city as a model for transforming other African cities into clean, liveable and green places of the future.

## **10.2 Models, proposals and alternative plans**

The research study established the acute dearth of urban greenery in Ado-Ekiti as a direct consequence of encroachment on setbacks and open spaces, disregard for statutory requirements, and a lack of emphasis on greening in planning schemes. It is against this background that urban greening should be entrenched in the city master plan. The first step would be to make it compulsory to include ample green areas in the form of trees and grass in building plans as a prerequisite for permit approval. This is supported by the submission of Asani (2014) that greening should be made a compulsory requirement to be met before the approval of property development plans for public, private and corporate developers by planning authorities at all levels of government. The implementation of such green-friendly approved plans should be closely monitored to ensure compliance. Optional models for desirable or permissible plot development-greening ratios should be made available to developers based on zoning arrangements. Such plot coverage model ratios include 50:50, 40:60, 30:70, and 20:80, depending on the density of development and the economic status of the developer, and areas of intervention. A strategic model to guide the drawing up of an overall city greening masterplan for achieving the ultimate goals of a good city is also evolved. These would provide avenues for the replication of the achievements of the city greening initiatives in other Nigerian cities and the rest of Africa.

### **Models of urban greening**

A model is a simplified description of a system or process to assist calculation, operation or prediction. It is a synthetic representation fashioned after an actual or proposed product or system to test alternative formats or aid prediction. In urban greening, models are descriptive analyses of the workings and interrelationship of existing or proposed environmental systems within the larger ecosystem. The models of urban greening used as reference points in this study are those of New York City, Curitiba, Cape Town and Durban.

New York City is the largest city in the US and one of the most populous in the world, with 8.4 million people living in the city proper and 19 million in the metropolitan area. The city is the 'economic powerhouse of North America' and the global financial and business capital, built mainly on a service based economy, finance, insurance, media and the arts. One of its major

challenges is the constraint to lateral development occasioned by the location of four of the five boroughs on islands with limited land resources further aggravated by relatively high population density. Despite these constraints, New York has one of the highest percentages of green space. It has adopted innovative initiatives to purposely create, maintain and sustain green spaces, with Central Park in highly built-up Manhattan representing a landmark achievement. The plan of the Park was based on Fredrick Olmsted and Calvert Vaux's winning entry in a landscape design competition in 1858. By the time construction was completed in 1873, more than four million trees and other plant varieties representing about 1,500 species were established in the Park. This led to the construction of several other parks and the development of the coastlines in all the boroughs, with about 20% of the city area maintained as green space. Further green initiatives in the City based on 'The Million Trees Program' in 2007, targeted the planting of a million trees by 2017. The American Green City Index (Siemens, 2011b) notes that the city is on course to achieve this goal, "having planted an average of 19,000 street trees each of the past three years and planting in total over 430,000 trees in parks, open spaces and private backyards".

Curitiba is a state capital in Southern Brazil and has the highest level of green urbanism, inclusiveness, liveability and sustainability in the country due to its highly successful urban greening programs. This environmentally-friendly city is home to 1.8 million people and is characterized by integrated urban planning, effective waste management, and an impressive public transport and pedestrian access system. Social justice, the green culture and environmental awareness are the cornerstones of its sustainability achievements. The Curitiba city environment has an enormous ecosystem of more than 400 square kilometers of urban forest, parks and gardens, translating to 52 square meters of green space per person. This green and pleasant environment promotes inclusiveness and liveability and a healthy way of life. About 1.5million, seedlings of various tree species were made available to citizens, with competitions and prizes encouraging participation. Oduwaye (2014) rightly referred to Curitiba as the green capital of Brazil given its over 1,000 green spaces, 14 forest patches, 16 parks, 70% waste recycling, and 75% reliance on public transport.

Cape Town is one of the African cities with the lowest population density with just 1,500 people per square kilometer. The coastal city is home to some of the world's rarest plant species in

multiple nature reserves. Deriving from several decades of ambitious planting exercises, Cape Town boasts the most abundant green space in Africa estimated at 289 square meters per person. The steady expansion of city greening is overseen by a local environmental resource management department which supervises urban green spaces. Moreover, environmentally sensitive areas of the city are consciously protected by well-articulated policies and directives to forestall development and sustain these areas as natural greenery. Continuous progress is made as the city authorities embrace urban planning principles that leverage on non-motorized transport and thereby create more open spaces for recreational opportunities.

With an estimated 3.5 million residents, Durban is the third most populous South African city and the third greenest city in Africa after Cape Town and Johannesburg. Located on the Indian Ocean, it is home to East Africa's largest port. The city centre is densely populated while the outer residential districts covering about 2,300 square kilometers are not as dense. Durban hosted the 2010 World Soccer Cup in preparation for which the Greening Durban 2010 campaign was launched. It included a reforestation project at the Buffelsdraai landfill site. Around 62,500 trees were planted, and the exercise boosted Durban's rich green space to the extent that it boasts of abundant green space at 187 square meters per person. The Durban Metropolitan Open Space System (D'MOSS) has launched several green initiatives to improve the city's ecosystem and has protected designated areas from urban sprawl and agricultural development. Some 74,000 hectares of land and water with high biodiversity value have been protected. The propagation of alien plant species was outlawed to forestall soil and water erosion. The city's biggest landfill site at Buffelsdraai was heavily vegetated and the trees and greenery screen the sight and odour of rubbish from nearby low-income residents while attracting new wildlife to promote biodiversity.

### **Model for sustainable urban greening and comprehensive approach for intervention in African green cities.**

The concept of sustainable development has been identified in Chapter 3 as the cornerstone of this study. This entails the application of smart growth approach to promote efficient use of resources, inclusive growth and green growth to attain the compact city level (Figure 10.1) as



Source: Poverty-Environment Partnership, 2012.

Figure 10. 1: The interrelated principles of sustainable development evolve the combination of inclusive growth with green growth and green economy to alleviate poverty, inequality and degradation.

contained in the European Green Paper (Mindali et. al., 2004, cited in UNHPS, 2009). It is pertinent that the issue of human development relating to their socioeconomic attributes need be carefully integrated into the living environment to maintain the quality and functionality of the natural elements such as land, water, air, flora and fauna and other entities (Atebije & Razak, 2014). The actualization of the ideals of these and other relevant concepts call for the adoption of peculiar spatial planning models that would reorder the trend of amorphous land use and disorderly landscape of the urban and peri-urban areas of the city without undermining cultural values. This would depart from earlier practices whereby nearly all spatial models adopted in Nigeria have not yielded appreciable result as “they were state-centered and foreign driven” (Akinola, 2014), whereas communities and cultures vary and from place, and “people always bear some marks of their origin” (Tocqueville, 1966 cited in Akinola, 2014), and the fact that a model worked in the Western World is not a guarantee that it will work exactly the same way elsewhere (Akinola, 2008).



and disorder, pollution and degradation, inadequacy of investment, oppressive governance, resource mismanagement, graft and corruption.

### **The proposed Ado-Ekiti model of comprehensive greening and urban spatial intervention**

The proposed Ado-Ekiti model of urban greening emulates some elements of the models of the green cities discussed above. It is through its guidance that the City Greening Masterplan is drawn. It addresses the need to see the physical existence of man in the realms of economy, livelihood and survival strategy as important factors militating against sustainable green landscape within the context of the city environment. While it is pertinent to make man comfortable in his natural habitat, it is equally important to ensure that the environment is safeguarded from misuse and abuse that are capable of disrupting natural processes. This underscores the indispensability of proper planning, control and maintenance to ensure checks and balances toward the attainment of a clean and liveable city environment.

This culminates to the development of the Strategic Urban Greening Intervention Model for Socio-Economic and Environmental Sustainability in Ado-Ekiti Green City (Figure 10.3). It is a localized but adaptive spatial and administrative model that recognizes human livelihood, poverty, survival strategies, citizen's culture, values and aspirations. Other relevant issues are health, space usage, the informal sector, economic impacts, ecological settings, environmental issues such as climate change, water, flooding, greenery, as well as government policy and administration in relation to the land use, overall landscape and environment of Ado-Ekiti and its region.

### **The dysfunctional zone**

In the dysfunctional zone of the Model, the Man-Environment Interaction Theory that explains the basis for human existence, survival and care for the environment, comes to the fore. This is crucial in the sense that the environment affects man, while man impacts the environment, hence human existence utilizes resources from the environment, just as it gives out products onto it. There is imbalance in this setup in the city setting in that the action of man has continuously upset the urban landscape with various vices including encroachment on setbacks and open spaces and attendant degradation of the living environment, which needs be put to check for an

enduring sustainability in Ado-Ekiti. The Models in Demographic Transition give insight into the influx of urban migrants, the dynamics of population growth in relation to the exploitation, utilization and conservation of resources, as well as how they affect the production, distribution, consumption of goods and services in the city. Also relevant is the Concept of Urbanisation, which has direct effect on city morphology and overall land use and the unfolding urban form and spatial structure with implications on the carrying capacity of infrastructure, utilities and services in the city.

The albatross on overall national development, which tickles down to Ado-Ekiti as the capital of Ekiti State, is the Homocentric Urban Economy Policy which places so much dependence on the oil-based revenue accruing from the central government. In 1997, the state revenue was generated internally was only 12%, 8% in 1998, 10% in 1999, 8% in 2000 and 10% in 2001 (Omotoso, 2009), while in 2003, 2005, 2007 and 2010, Olowolaju et al. (2014, p.158) submit that the state generated internally 8.5%, 7.1%, 9.72% and 11.75% respectively. The same situation is applicable to the local governments in Nigeria including Ado-Ekiti Local Government Area. Hence, Ekiti State wears the toga of 'a civil service state' with huge infrastructural deficit, workers' salary arrears, youth unemployment, and neglect of the informal sector. The failure of the state to cater for its citizens' welfare drives the people to fend for themselves to improve the family economy by way of engaging in informal trading and other activities on road setbacks and any available open space, which smacks of encroachment that leads to the obstruction of free movement of pedestrians, indiscriminate on-street parking, traffic congestion and other forms of environmental degradation in the city.

The Concept of Urban Decay is applicable given the state of environment that results from lack of planning, and failure of development control agencies to regulate amorphous expansion. The city environment is adversely impacted by quantitative and qualitative housing deficiency, overcrowding, the incidence of infrastructural overstretching and collapse, poor maintenance culture as well as the lack of funds to carry out meaningful spatial development. This underscores the relevance of the Reclamation and Restoration concepts as intervention approaches to recover lost public spaces for more equitable utilization, and also rejuvenate the degraded inner city districts and the sprawling peri-urban areas. The challenges of these strategic

renewal methods stem from displacement and relocation of original occupants, knotty issue of compensation evaluation and payment, and shortage of funds to finance the projects. All these subject socio-economic and environmental sustainability to test in the city

Concept of Sustainable Development is usually applied, but the government and people hardly follow the tenets in carrying out physical development. Decision taking far negates decision making, whereby a large proportion of the populace embark on development audaciously, without recourse to relevant planning laws and regulations. The ineffectiveness of statutory provisions is also linked to the poor performance of the development control agency saddled with the responsibility of implementation, which further promotes the jettisoning of due process. This policy maladministration combined with peoples' act of impunity give rise to waves of illegal structures on the city landscape and renders the Concept of Sustainable Development dysfunctional and ineffective in the city. Inevitably, the combined forces of administrative laxity, functional inefficiency, model failure, misplaced priorities, negligence and disrespect for the rule of law culminate to the negative zone of this Model.

### **The negative zone**

The Model also deals with packaging key systematic elements that show the negative aspects, and how such negativity can be dismantled to become positive attributes that yield desirable outcomes in reclaiming encroached setbacks and open spaces for sustainable city environment. The negative aspects assume physical, social, economic, environmental and administrative dimensions. Physical characteristics manifest in rapid urbanisation and migration inducing population growth, increased spatial demand, uncontrolled development and amorphous city expansion. In turn, these give rise to vegetal depletion, infrastructure deficit, overstretching and collapse of infrastructural facilities and amenities, thereby bringing hardship to city dwellers and visitors alike.

In the social realm arise high incidence of poverty and inequality, unemployment, underemployment and pseudo-employment syndrome, which pose livelihood challenges and ingenious survival strategies that make the people engage in informal activities on road setbacks, building frontages and airspaces, including those of public and religious buildings. Within the

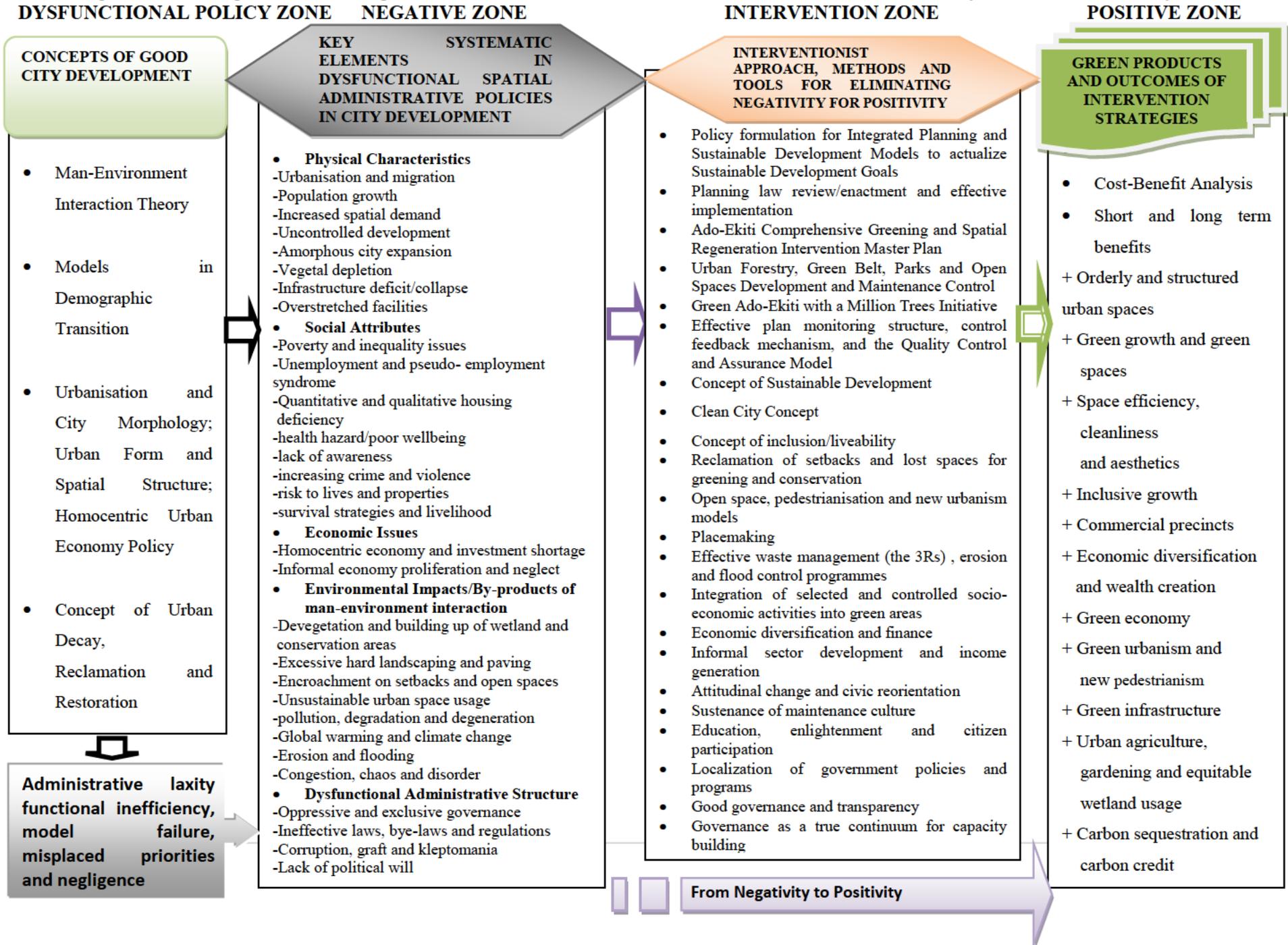
residential districts, there abound quantitative and qualitative housing deficiencies, which expose the people to poor wellbeing, health hazard, increasing crime rates and violence, and risk to lives and properties. To some extent, the lack of awareness makes the people build without formal planning approval, or embark on the construction of substandard dwellings on public spaces to fill the gap of housing deficit in the city.

The economic issues revolve mainly around the operation of homocentric economy leading to investment shortage and the proliferation of the informal economy. The informal sector is unregulated, lacks proper organisation and coordination as it suffers neglect by the government. The large dependence of the state and local governments on revenue accruing from the Federation account without supportive internally generated revenue is the bane of meaningful economic development in the city in particular and generally in Ekiti State.

In terms of environmental impacts, the by-products of the man-environment interaction are evident in the city. Such include unpermitted vegetal removal and building up of wetland and conservation areas. The city is also deprived of much greenery by the excessive use of hard landscaping and paving, as well as the encroachment on setbacks and open spaces, which should normally be preserved as green areas. This has resulted into unequitable utilization of urban space leading to congestion, pedestrian and vehicular traffic obstruction, chaos and disorder, erosion and flooding, pollution, degradation and space degeneration. The cumulative effects of these environmental anomalies in the city manifest into global warming and make pocket contribution to climate change.

An important factor of negativity in the Model is the dysfunctional administrative structure at the city, local and state government levels. The oppressive and exclusive style of governance is symbolized with selfishness, bitterness, and vendetta, which devastate the quality of good governance. Corruption, graft and kleptomania further dwindle scarcely available funds at the expense of capital projects, while the lack of political will to embark on laudable schemes prevent the course of meaningful development.

Figure 10. 3: Strategic Urban Greening Intervention Model for Socio-Economic and Environmental Sustainability in Ado-Ekiti Green City.



The ineffectiveness of laws, bye-laws, regulations, and organs of implementation have given right of contravention to erring developers to perpetrate encroachment and illegal development in the city.

### **The intervention zone**

This zone of the Model is the interface between the negative and positive zones. It consists of interventionist approach, methods and tools for eliminating negativity for positivity. It is hereby crucial to formulate policy for integrated planning and sustainable development models to actualize sustainable development goals in the city. Such begins with the review of existing planning laws and the enactment of new ones as deemed necessary for effective implementation. Hereafter, the Comprehensive Greening and Spatial Regeneration Intervention Master Plan for Ado-Ekiti is formulated and publicized for public critique, following which it is adopted, enacted into law, and slated for conscientious implementation. This necessitates the setting up of the organs of implementation of the plan, such as the Urban Forestry, Green Belt, Parks and Open Spaces Development and Maintenance Control Unit, and the Green Ado-Ekiti with a Million Trees Initiative. These bodies will assume the responsibility of actualising the greening components of the Ado-Ekiti Green City Masterplan.



Source: KPMG, 2013.

Figure 10. 4: The six perspectives of the sustainable city developed by KPMG.



Source: Sridhar, 2014.

Figure 10. 5: A conceptual diagram of a clean city.

For this purpose, an effective plan monitoring structure, control feedback mechanism, and the Quality Control and Assurance Model is devised, backed by appropriate legislation and put in place for immediate operation.

The concepts underpinning the Ado-Ekiti Green City Masterplan are the Concept of Sustainable Development (Figure 10. 4), the Clean City Concept (Figure 10. 5), the Concept of Inclusion, and the Concept of Liveability. The greening components of the Ado-Ekiti Green City Masterplan include the reclamation of setbacks and lost spaces for greening and conservation; parks, gardens, open spaces, pedestrianisation and new urbanism models; and placemaking initiatives. The plan accommodates the integration of selected and controlled socio-economic activities into green areas to promote all the elements of sustainability. To rejuvenate the local economic base, an important provision of the Ado-Ekiti Green City Masterplan is informal sector development to promote income generation in the city. To attain a high level of cleanliness based on the Clean City Concept in the green city, effective waste management comprising waste reduction, reuse and recycle (the 3Rs) are adopted and consistently implemented alongside erosion and flood control programmes.

Other policy intervention directives in the Ado-Ekiti Green City Masterplan are attitudinal change and civic reorientation; sustenance of maintenance culture; economic diversification from monocentric to polycentric model to broaden economic base and generate more fund to finance laudable projects; education, enlightenment and citizen participation; localization of government policies and programs; adoption and perpetration of good governance and transparency; and the operation of the business of governance as a true continuum for enduring capacity building.

### **The positive zone**

The positive zone of the Model comprises of deliverable green products as outcomes of intervention strategies. These are the Cost-Benefit Analysis of short and long term benefits such as orderly and structured urban spaces; space efficiency, cleanliness and aesthetics; green growth and green spaces; green urbanism and new pedestrianism; green infrastructure; and green economy. Others are inclusive growth inherent in regulated commercial precincts in the green areas, economic diversification and wealth creation. A sustainable city environment and food security is attained through urban agriculture, gardening and equitable wetland usage; carbon sequestration and carbon credit; and abatement of global warming and climate change.

### **Mapping and documentation of encroached spaces**

As recently proposed (Ojo-Fajuru & Adebayo, 2014b), government should, as a matter of urgency, operationalise relevant laws and embark on the mapping, compilation, and documentation of all encroached setbacks, open spaces and vacant land within the urban limits of the capital city. Facilitated by remote sensing and satellite imagery, this inventory, which would be part of the proposed master plan, would establish the levels of encroachment and illegal development and as well guide the parameters for reclamation, greening exercise, integration of socio-economic activities and livelihood strategies.

### **The Ado-Ekiti Comprehensive Greening and Spatial Regeneration Intervention Master Plan as a Model for African Cities**

The Ado-Ekiti Comprehensive Greening and Spatial Regeneration Intervention Master Plan (hereafter referred to as ‘Ado-Ekiti Green City Masterplan’), depicted in Figure 10.4, is an

overall masterplan for a wide-ranging inclusive intervention provision, developed to synthesis the elements of the Model, and implemented through strategic monitoring, evaluation and feedback on all programmes of action aimed to achieve the ultimate goals of good clean city. It seeks to re-establish and strengthen the age-old bond between man and nature by injecting greenery into bare areas by natural and intervention processes. These greening initiatives are leveraged on the transformation of reclaimed setbacks and open spaces and re-establish them as green areas in the city. It includes the restoration of hard and bare surfaces to green spaces by embarking on massive tree planting and grassing of incidental open spaces and maintenance of naturally occurring patches along various categories of roads to create greenways, parkways, promenades and boulevards. These will be integrated with vegetated, re-established and newly created gardens and parks within the residential districts to form a network of interconnecting greenbelts. With the legislation of making it mandatory for all developers to stick to plot ratio coverage models, and requiring them to submit a green landscape development plan with project design as a condition for planning approval, greenery will gain a wider coverage, provide shade, improve comfort and enhance the quality of life in the residential areas.

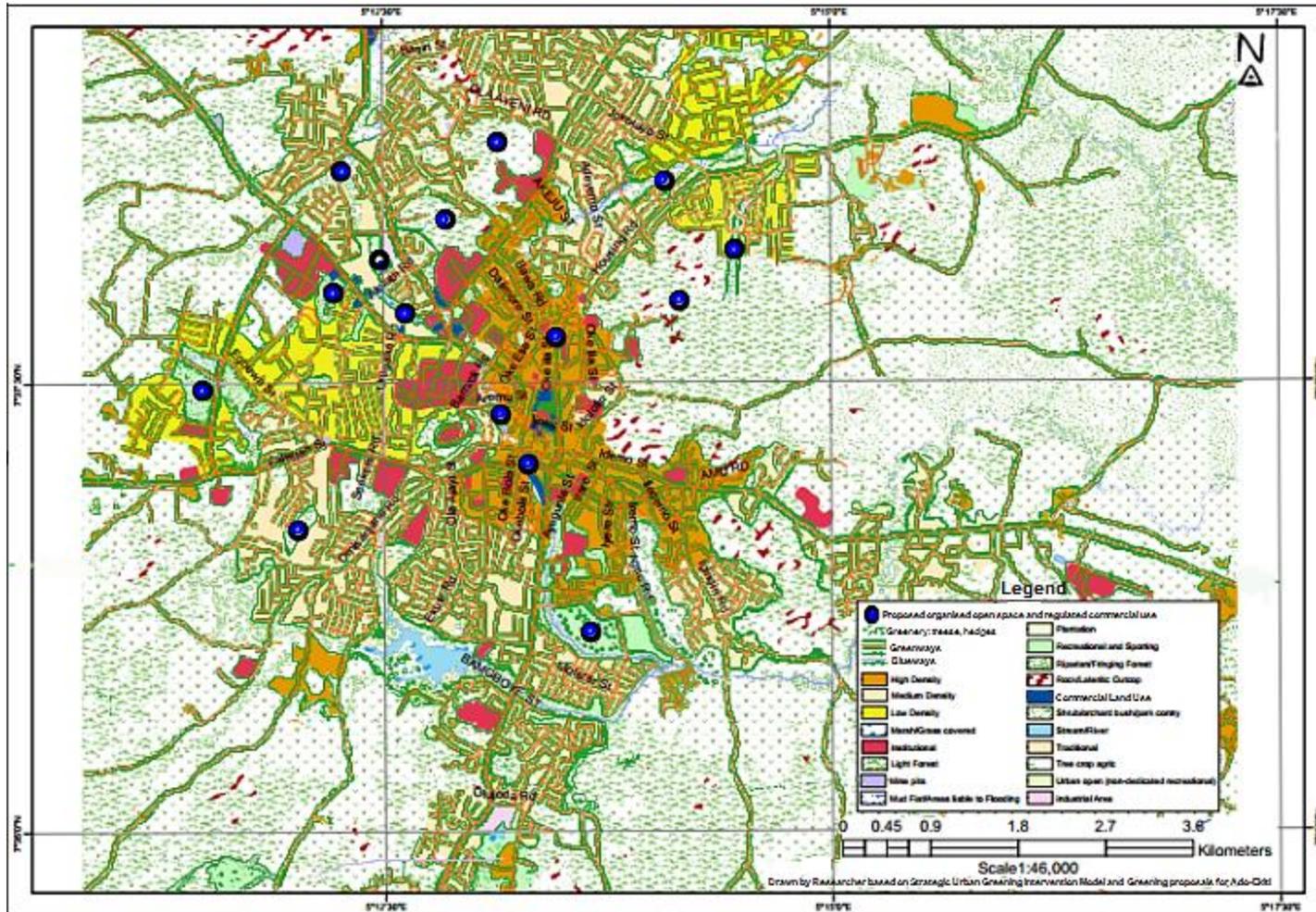
The urban greening program is expected to be boosted by a plan to plant a million trees in various sections of the city by 2020. It is intended that Ado-Ekiti joins the comity of green cities, surpassing Lagos' achievement of an estimated 34 square meters of green space per person, and ranking with Durban, Johannesburg, and Cape Town that have abundant green spaces. The model promotes natural shading and protective elements which enhance city aesthetics, cool the environment, preserve the ecological system, and promote biodiversity. With lush green landscape thriving on hitherto bare or hard surfaces, glare and heat in the hot tropical climate would be reduced, mitigating climate change, and promoting an ecological balance between people and nature, and reinventing Ado-Ekiti as a great city of the future.

### **10.3 Policy statements, recommendations and policy directives for the plan implementation**

The reclamation of encroached setbacks and open spaces, and their utilization for green landscaping and the incorporation of socio-economic activities to create great places that promote liveability, inclusiveness and a sustainable landscape in Ado-Ekiti was the main thrust

of this research study. The study showed that contravention and encroachment led to disorderliness and environmental degradation, with very few open spaces and greenery in the spatial structure of the city. Furthermore, it was found that while people are aware of the law, they violate it with impunity to access the space required to survive, resulting in illegal structures that clog available spaces in the urban matrix. It was also apparent that government agencies set up to control development are weak and ineffective in preventing encroachment and amorphous expansion. This renders the city environment formless, unattractive and unfriendly. Strategies are urgently required to turn this situation around by recovering lost spaces and using them to green the city. This would promote biodiversity and resuscitate liveability, efficiency and inclusiveness. With appropriate public support and participation, the ugly state of the environment could be addressed and reclaimed spaces could be re-established and maintained as green places in the capital city.

It is against this background that the following recommendations and policy directives are made to achieve the main goal of the Ado-Ekiti Green City Masterplan in adopting green landscaping as a tool to transform recovered setbacks and open spaces to create parks, squares, gardens and promenades that enhance environmental quality and promote aesthetics, liveability and inclusiveness. The concept of catchment area was used to locate newly created squares in the three morphological areas of the city as shown in Figure 10.6. The sphere of influence in the COA is larger than those in the residential neighbourhoods of the NDAs and PREs, given the centrality and wider array of high-level services offered in the former. In effect, the size of the squares created is related to the population threshold in the catchment areas whereby those in the high density populated CBD is larger than those located in the residential neighbourhoods and suburbs of medium and low density population. The entire commercial activities and services previously operating on reclaimed setbacks and open spaces along the linear corridors, defacing the city, are relocated at organised convergent places at nodal points in the three morphological areas.



Source: Drawn by Researcher based on the Strategic Urban Greening Intervention Model and proposals for Ado-Ekiti Green City Master Plan  
 Figure 10. 6: The Ado-Ekiti Comprehensive Greening and Spatial Regeneration Intervention Master Plan.

The determining factor for the location of the nodal points also took cognizance of the minimum walking distance between 300m to 500m, which can be covered by foot within three to ten minutes. The nodal points will be accessed by major roads and serviced by public transport system. This addresses the challenges of transportation by ensuring unhindered ingress and egress to enabling the people carry out commercial and shopping activities within the vicinity of their homes. This is to ensure convenient access, shared use and variety of services in the squares and parks to accommodate the activities taken away from the roadsides and streets in the green layout. The longer the distance to the facilities, the greater is the tendency for the people to return to the streets.

This provision will also satisfy the need to create modern markets that surpass the traditional ones by giving room to a wide range of formalized informal activities to take place simultaneously within their spaces. This model of integrating clusters of informal activities structured and grouped according to their trade is to promote complementariness and intervening opportunities. In Africa, socio-economic aspect and livelihood strategy cannot be divorced from the success of any planning instrument and regulation, failing which the people will resort to open space encroachment along the streets and activity areas with the byproducts of environmental pollution. It is based on this premise that these nodal points were proposed to accommodate informal sector activities in the city. This sector constitutes an integral part of the community and makes important contribution to the economy. Their inclusion will ensure the restructuring of the typical African system from a negative hindrance to be a contributing factor to the functionality of the built environment, and thereby discourage the phenomena of motivated linkages inherent in the recurrence of public space contestation, encroachment and degradation in the city. This is to prove the sanctity of the people's opinion that the greenery alone is not complete without the socio-economic aspects and livelihood, which are very important to the success of a smart city that maintains the green setbacks and open spaces in accordance with building regulations and bye-laws. It is also recommended that the instrument of garbage collection be strengthened in the business districts, activity areas and residential neighbourhoods to turn the waste generation constraints to economic opportunities. These proposals will ensure

convenient transportation, effective environmental protection, promote sustainable socio-economic development and guarantee the reinvention of Ado-Ekiti as great place.

### **Attitudinal change, civic reorientation, enforcement and compliance with the rule of law**

First, attitudinal change is required across all sectors of Nigerian society. Citizens need to support the current administration's agenda to do away with the impunity and corruption that have clogged the wheels of national development. Discipline, patriotism, honesty, transparency and orderliness are required to break the underdevelopment, poverty and squalor that have stalled significant national progress. The future of coming generations of Nigerians lies in the hands of the present generation. The notion of business as usual in doing things must change for good.

Once people have decided to accept and embrace change, the state government should invoke and review extant laws, enact new ones when necessary, and implement them to the letter. While the State Government represents the opposition party, it should take advantage of the current change agenda of the Federal Government to enforce statutory provisions, regulations, by-laws and codes guiding development matters – and indeed every other sector of the society and environment. The Fashola Administration's successful greening of Lagos Megacity involved enforcing existing laws rather than enacting new ones. Dissenting voices were raised, but the determination and consistency of government, headed by a Senior Advocate of Nigeria (SAN), brought the green winds of change to the city environment.

Nigerians are law abiding and conscious of the law, and are wont to comply once they know that culprits will be arrested, prosecuted and punished. The rule of law should hold at all times, no matter how highly placed the offender. With the coming to power of General M. Buhari as military Head of State in 1984, the War against Indiscipline (WAI) was launched to stamp out the ill-discipline and corruption that bedeviled the country. However, it stalled in 1985 and was jettisoned by the Babangida Administration that reverted to business as usual. Thirty years later, and now at the helm of the country as a democratically elected civilian President, the war that the Buhari Administration has waged against corruption since May 2015 has started to bear fruit.

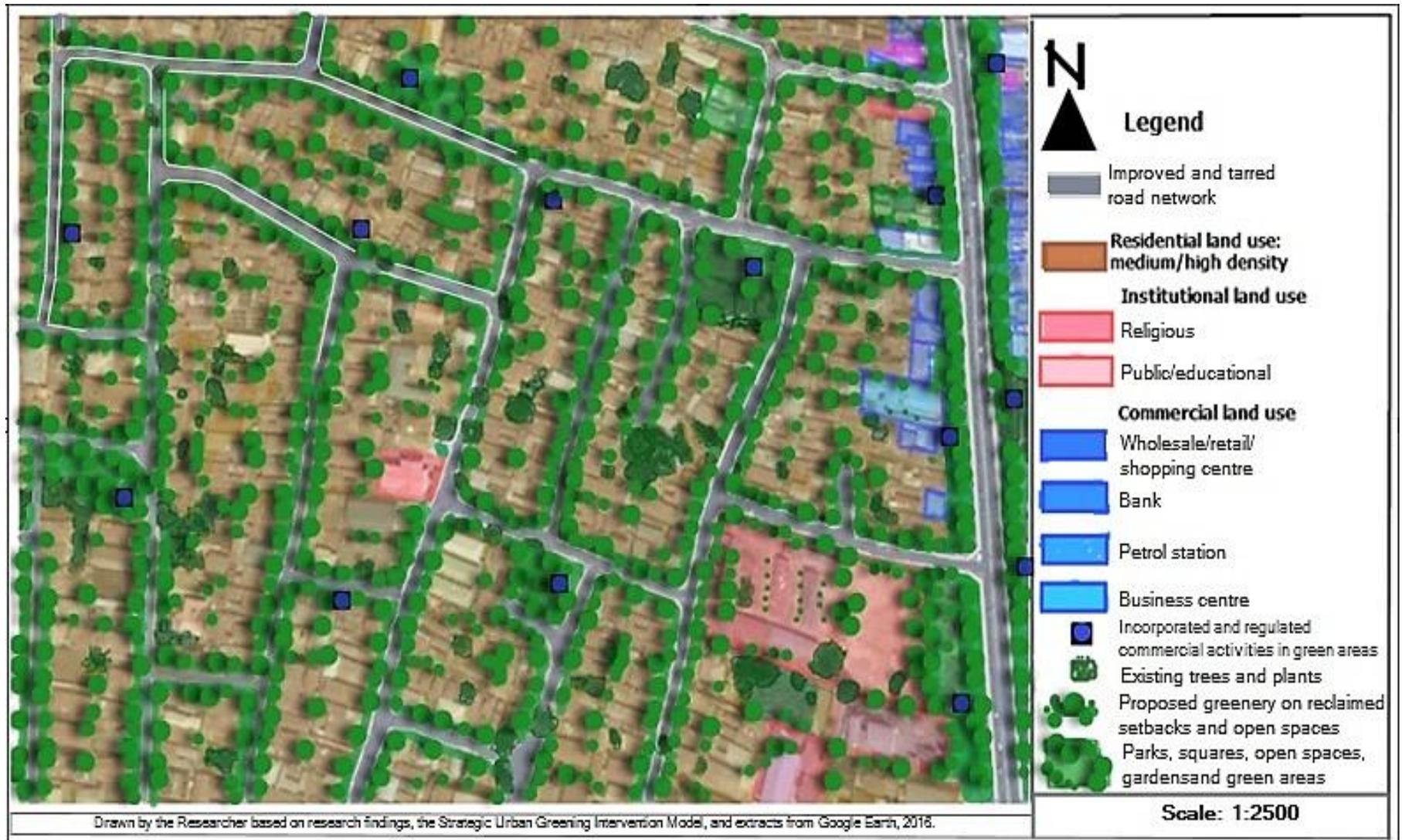
This should be emulated and replicated in Ekiti State to eschew illegal development and open space encroachment and thus improve the state of the environment in the capital city.

### **Adopt the Ado-Ekiti Comprehensive Greening and Spatial Regeneration Intervention Master Plan as a Model for African Cities**

The Ado-Ekiti Comprehensive Greening and Spatial Regeneration Intervention Master Plan (see in Figure 10.6), made pursuant to the Strategic Urban Greening Intervention Model for Socio-Economic and Environmental Sustainability in Ado-Ekiti Green City, and as a component of the Master Plan of Ado-Ekiti, should be subjected to public critique before adoption and conscientious implementation. Appropriate enactment should be adopted within the framework of the Ado-Ekiti Green City Masterplan to chart the course of all organs of implementation and as well legalise and support the breaking up of bare and hard surfaces for replacement with plants and flowers to reintroduce nature into hitherto exposed areas of the city. All open spaces naturally or incidentally occurring, including setbacks to roadways, utilities and water bodies, and those reclaimed from illegal development, as well as slopes, should be converted into massive urban forest and green areas as contained in the structural greening plans of the three morphological zones of the city in Figures 10.7, 10.8 and 10.9. These green spaces should be appropriately furnished to create great places for citizens' recreation. Based on the data generated from the research, the space which people occupy along the road is calculated as  $5\text{m}^2$  per person. This is used to determine the current and projected space requirement for their activities, and how the need can be met within the vicinity of their residence. This culminated to the determination of the minimum space requirement for selected socio-economic activities incorporated and controlled in designated nodal points in the catchment areas. These nodal points, which are located along major roads and linked with public transport system in the three morphological zones (see Figures 10.7, 10.8 and 10.9), are provided on the basis of  $6,000\text{m}^2$  per 1,000 persons in concordance with the determining factors in this research. For maximum space utilization, 2-storey blocks will be provided to accommodate more users and provide ample spaces for circulation, greens, infrastructural facilities and services. This is geared towards the promotion of easy access, compactness, inclusiveness, services, green economy and environmental sustainability in the city.



Source: Drawn by Researcher based on the Strategic Urban Greening Intervention Model and proposals for Ado-Ekiti Green City Master Plan.  
 Figure 10. 7: The structural greening plan of the central area in the Core and Old Area morphological zone in the city.



Source: Drawn by Researcher based on the Strategic Urban Greening Intervention Model and proposals for Ado-Ekiti Green City Master Plan.  
 Figure 10. 8: The structural greening plan of the central area in the Core and Old Area morphological zone in the city.



Source: Drawn by Researcher based on the Strategic Urban Greening Intervention Model and proposals for Ado-Ekiti Green City Master Plan.  
 Figure 10. 9: The structural greening plan for the State Residential Estate, Oke-Ila in the PRE morphological zone of the city.

## **Major intervention approaches to forestall indiscriminate encroachment on setbacks and open spaces**

The success and sustenance of the greening program in Ado-Ekiti will depend on the total eradication of green area encroachment, continuous and progressive greening of open spaces and consistent maintenance of existing ones. It is therefore important to define clear cut intervention modalities to achieve the goal of sustainable urban landscape development and clean environment in the capital city. Four major intervention approaches are proposed. These are (i) forestalling indiscriminate encroachment on open spaces and setbacks, (ii) greening reclaimed and newly established setbacks and open spaces in the city, (iii) monitoring and maintaining the green spaces, and (iv) incorporating inclusive socio-economic and cultural activities to sustain the overall city landscape and built environment.

Incessant encroachment was identified as a major menace that debases the city environment more than any other factor. This calls for legislation to completely ban indiscriminate occupation or usurpation of any space within the premises of any public or private building or open space, setback, airspaces, incidental open space, vacant lots or virgin land within the city limits. This should include street trading and informal unregulated hawking, putting an end to informal trading activities or the display of goods in residential or public places other than authorized commercial precincts within the green areas, or within designated commercial areas or dedicated open and traditional markets. House to house trading in converted rooms or structures attached to buildings should be strictly outlawed. Signs should be erected to indicate that such activities are not permitted in the zoned land uses and offenders should be prosecuted according to the full power of the law. Street hawking of goods should be gradually phased out. The State development control Agency, the Board, the Quality Control and Assurance Unit and other organs should be empowered to curtail encroachment in all guises as soon as it appears, and demolish encroaching development, appurtenance, attachments, lean-tos, structures and shanties built on setbacks, air spaces and open spaces in the city. The spaces regained should be used to re-establish greenery. It is clear from the study results that city residents are committed to a greening program; they should thus be expected to abide by the rules.

It should be made compulsory to promptly plant all setbacks and open spaces as soon as they are created in line with established models for plot ratio development. Reclaimed setbacks, air spaces, and incidental open spaces must be re-established as green spaces. Filthy street corners and overgrown open lots should be cleared and planted with grasses, shrubs, palms, trees and flowers. Excessive hard surfaces should be replaced by green spaces to reduce glare, heat radiation, and enhance the cooling of the environment. Road aprons, medians, hillsides, slopes, cut or filled terrains, spurs and valleys should be groomed as lush green spaces to re-establish biodiversity. No space should be left without planting or untreated.

A needs assessment should be conducted to determine the shortfall in the quantity and quality of parks, gardens and recreation areas in the residential districts or wards in the city. This would enable the location, type and size of proposed parks and open spaces or types of recreational facilities to be determined, including implementation, funding and phases of the program (American Planning Association, 2006). It is on this basis that new parks and gardens should be established within residential districts, while areas of historic interest and natural scenic beauty should be harnessed to enhance the ratio of green spaces to the populace and thereby bring recreational opportunities nearer to the people. These include the proposed Ado-Ekiti Botanical Garden at Atikankan, Ajilosun Water Park, Olota Nature Centre, Olokegbokeleri Scenic Park, and Erifun Nature Park. Substantial portions of the built up spaces, especially in the core and new development areas should be acquired from the public with adequate compensation and cleared for parks and gardens in the residential districts in the manner in which Central Park was established in Manhattan.

As proposed elsewhere (Ojo-Fajuru, 2012; Ojo-Fajuru & Adebayo, 2014a, Ojo-Fajuru & Adebayo, 2014b, and Ojo-Fajuru & Adebayo 2016), the principles and tenets of urban forestry should be adopted and vigorously pursued to transform the bare cityscape into a thickly vegetated landscape nurturing a rich, diverse ecosystem. Urban agriculture and wetland cultivation and protection should be embraced to complement the greening exercise and promote food security and employment opportunities. Urban agriculture is synonymous with urban greening as vegetable cultivation is an indispensable carbon sink that plays a crucial role in

carbon sequestration that mitigates climate change. The use of wetlands for urban agriculture protects these sensitive areas and offers protection from flooding through the absorption of surface runoff (Akinola et al, 2014).

The revegetated spaces should form a close-knit greenbelt in and around the city that re-establishes the primordial bond between man and the environment in Ado-Ekiti, and enables it to emerge as a great city of the future. The Board, Ado-Ekiti Million Trees, the Quality Control and Assurance Unit, NGOs, CBOs, QCAU and the entire populace would all play crucial roles in the success of this program. New trends in urban development such as the World Bank Agenda for green cities in partnership with the UNEP should be explored and adopted in line with “thinking globally, and acting locally”.

Poor maintenance of public facilities and infrastructure is a social malady in Nigeria. A change in mind set is required to overcome this challenge and promote a good quality environment. The authorities and the public should share the responsibility of maintaining green spaces. Citizens should blow the whistle on any abuse or misuse of green areas. Incorporating social and economic activities in selected parts of the green areas will also promote the monitoring of green areas. The Development Control Agency, the Board, and the Quality Control and Assurance Unit should monitor the upkeep of these areas and prevent any development that does not conform to the Ado-Ekiti Green City Masterplan.

Incorporating some socio-economic and cultural activities and services into cultural and historically significant sites, including kiosks, gift shops, fruit stands, restaurants and snack bars, internet services and business centers, barbers and hair dressing salons, vulcanizers, newsstands, ATM machines and parking spaces, among others into the green areas has three advantages. Firstly, it satisfies the public’s desire to provide such services in green areas, thereby promoting inclusiveness in the city greening program. It is also one way of meeting demand for human activities, especially commercial ones and filling the gap created by the absolute ban on indiscriminate trading activities. It promotes employment creation that improves the city’s financial base and economic sustainability. Secondly, such services will complement the

functionality of green areas for recreational activities, satisfying the needs of residents and tourists alike. The third advantage is that operators of the incorporated activity areas will act as natural watchdogs to prevent misuse and abuse of the green areas, while the daily operation and patronage of these places will promote inclusiveness that turns initially unattractive or usurped spaces into inviting, living and refreshing green places for the commercial, recreational and emotional fulfillment of residents, while offering interesting places for tourists to visit in the transformed state capital. However, designated activity areas within the green belt should be well demarcated from planted areas with kerbs, bollards, boulders, chains, etc., and be well-designed prototypes that are carefully constructed and tastefully paved for high aesthetic quality and durability, supplemented with facilities like seating, waste bins, lighting and graphics to make the city environment friendly to all. These protected green areas will promote biodiversity and enhance atmospheric purification and environmental cooling.

### **Lunch the Green Ado-Ekiti with a Million Trees Initiative**

As recently proposed (Ojo-Fajuru & Adebayo, 2014b, Ojo-Fajuru & Adebayo 2016), the Green Ado-Ekiti with a Million Trees Initiative (hereafter referred to as the ‘Ado-EkitiMillionTrees’), after the manner of MillionTreesNYC, Curitiba’s 1.5 million trees and the Greening Durban project, which planted and cared for millions of trees in these cities, should be launched as a non-profit organisation to elicit citizens’ support and participation to reinvent the capital city as a great place. This should be within the framework of the Ado-Ekiti Green City Masterplan to increase forest space in the city. It should operate in tandem with the state tree planting exercise and keyed into the Federal Government-supported World Green Project, as in the case of Zamfara State in the north-west geopolitical zone of the country. According to the Commissioner for Environment, more than 70,000 trees have been planted in this State as a shelterbelt to curtail desert encroachment. This synergy will similarly supplement the provision of free tree seedlings, flowers and grasses nurtured in nurseries and horticultural gardens in strategic locations in to feed the greening initiatives, actions and programmes in Ado-Ekiti. The indiscriminate cutting of trees should be banned by law, and except in cases of approved maintenance or unavoidable control, it should be made compulsory to plant two or more trees to replace any one cut down.

## **Establishment of the Urban Forestry, Green Belt, Parks and Open Spaces Development and Maintenance Board**

Also as recently proposed (Ojo-Fajuru & Adebayo, 2014a, Ojo-Fajuru & Adebayo 2016), the state government should set up an Urban Forest, Green Belt, Parks and Open Spaces Development and Maintenance Board (hereafter referred to as ‘the Board’) at the city level to implement the policies and programs set out in the Ado-Ekiti Green City Masterplan. The Board would be tasked with the responsibility of creating urban forests and green belts with interconnected parks, gardens, promenades and other open green areas with carefully selected vegetation to link hitherto fragmented city spaces and promote biodiversity. It would also conduct a regular inventory and improve the physical and structural outlook to enhance the functionality of existing recreational open spaces in the city. Damaged equipment should be repaired or replaced, while new facilities should be provided to offer quality service in recreational open spaces. The environment of these facilities should be kept clean, litter-free and healthy. Privately owned resources should be closely monitored for compliance with standards and policy directives. Uncomplimentary uses within recreational open spaces should be banned and removed. The staff working under the aegis of the Board, as well as the operators of incorporated socio-economic ventures, and signs and graphics would safeguard recreational open spaces from misuse, abuse, vandalism and encroachment. Offenders should be prosecuted.

## **Encourage and protect placemaking initiatives**

Also in line with an earlier policy recommendation (Ojo-Fajuru & Adebayo 2014b; Ojo-Fajuru & Adebayo 2016), individuals, groups and corporate bodies should be encouraged to form non-profit, service oriented community-based organizations to make contributions to the goal actualization of the Ado-Ekiti Green City Masterplan and its component Ado-Ekiti Million Trees’. These non-government organisations should be fashioned along the likes of Project for Public Spaces (PPS), Placemaking Chicago, Birmingham Open Spaces Forum, Friends of Heaton Moor Park, and the Green Movement in Paris, among others. They would operate in tandem with the Board, and unite voluntary placemakers and people from all walks of life, to clean forgotten territories, abandoned open spaces and filthy vacant lots. The Governor and top government officials should come on board. Newly elected Tanzanian President, John Magufuli helped clean

dirty streets with his bare hands in place of costly colorful annual Independence Day celebrations so as to stop the spread of cholera in his country. The revamped spaces should then be planted with flowers, hedges, and trees to beautify the environment and bring back lost species, reinventing the Eco city of the future.

### **Establish the Quality Control and Assurance Unit**

Nigeria suffers a quality assurance and maintenance deficit in every aspect of national life including issues relating to the environment. As proposed by several studies (Ojo-Fajuru, 2012; Ojo-Fajuru & Adebayo, 2014a, Ojo-Fajuru & Adebayo, 2014b), strengthened government control is central to law enforcement and the achievement of recommendations and policy directives. To this end, a Quality Control and Assurance Unit (hereafter referred to as ‘the Unit’) should be established to monitor the implementation of the masterplan and the activities of the Board, the Ado-Ekiti Million Trees, and the placemaking organisations. Reporting to the Governor, the Unit would oversee the upkeep, audit and maintenance of green facilities, infrastructure, and the overall landscape towards making and sustaining the city as a great place.

### **Governance as a continuum for capacity building and the acquisition of skilled manpower**

Government and governance to boost capacity to control department is germane to the success of this city reinvention program. The policy somersault syndrome should be avoided whereby successive state administrations abandon sound policies initiated by preceding administrations on the grounds of political differences or personality clashes. This unprogressive scenario is currently playing out in the State; the ruling Fayose Administration has already abandoned the flourishing greening initiatives of the Fayemi Administration, which should have been retained, maintained and sustained with immense benefits for the state capital and the people. The capacity of the development control agency in the areas of manpower and monitoring equipment should be strengthened for wider coverage and improved performance.

Successful implementation of these proposals requires a multi-disciplinary team, calling for the employment of qualified high and middle level officers and professionals in the built environment such as urban and regional planners, architects, landscape architects, builders and

construction managers. These employees would assist the proposed Board to implement the Ado-Ekiti Green City Masterplan and several other initiatives. Institutions of higher learning should thus be technically and financially equipped to train skilled personnel to implement, manage and maintain the proposed parks, gardens, open spaces, slopes, promenades, boulevards and other aspects of the Ado-Ekiti Green City Masterplan, and policy guidelines and to work with interest groups.

### **Public education and enlightenment on environmental issues**

There is a need for on-going education and sensitization of the public on the importance and advantages of well-maintained and landscaped setbacks and outdoor spaces, furnished recreational open spaces, and greenery in the urban setting. There is also need to create awareness of extant development control regulations and other enactments, and the importance of conforming with such in order to create an orderly urban environment. Citizens should be encouraged to shake off apathy and to be proactive and participate in community improvement activities such as placemaking.

### **Establishment of small and medium enterprises for horticultural gardens and manufacture of landscaping materials**

Given the current economic realities in Nigeria, landscape development has become an expensive but gainful venture. The public and private sectors should work with NGOs and CBOs to establish small and medium enterprises for horticultural gardens and the manufacture of landscaping materials. This would complement and promote the development of parks, gardens and recreational open spaces within the city setting and the suburbs. It would enhance employment creation and capacity building and leverage government's micro-credit facility programs such as the National Directorate of Employment (NDE) and the Accelerated Poverty Alleviation Programme (APAP).

### **Effective waste management control**

As the capital city of Ekiti State, Ado-Ekiti should be clean, physically attractive and aesthetically pleasing. This requires best hygienic and sanitary practices to promote public health

and safety and a salubrious environment, which is a prerequisite for a green city. Efficient waste management initiatives are required to prevent refuse disposal in drainage channels and on vacant plots. This measure is germane to maintain a litter-free environment and eliminate carbon footprint in the city. The green culture of reducing waste generation, reusing rather than discarding some items, and the recycling of non-biodegradable waste and composting of biodegradable ones (the 3Rs) should be adopted to turn the negative aspects of waste generation to positive assets of economic importance in terms of employment and income generation in the city. In similar manner, the menace of roaming animals and destitution should be addressed to maintain a wholesome city environment.

### **Diversion of through traffic for easy movement, cleaner air, and creation of boulevards**

An effective way to alleviate the traffic and transportation challenges in the state capital is the provision of ring roads and by-passes as an alternative route to channel traffic around the city. This is in line with some of the proposals in the ad-hoc Structural Plan for Ado-Ekiti submitted to the administration of Inua Bawa in 1997 shortly after the creation of Ekiti State. The Vice Chairman of the Structural Plan Committee and Past President of the Town Planners Registration Council of Nigeria (TOPREC) confirmed the alignment of the proposed ring roads that will divert traffic without a city destination from the city. This would ease traffic congestion, reduce traffic in the central area, and reduce travel time. It would also decrease emissions from stop and go vehicles, making for cleaner air. As integral components of the urban greening programme, the ring roads and by-passes will be developed to form boulevards with forest groves as carbon sinks for air purification and climate change mitigation. All these measures would make the city more liveable.

### **Establish a Holiday Resort and reinvent Ado-Ekiti as a great city of tomorrow**

As proposed elsewhere (Ojo, 1986), a holiday resort encompassing a recreation park with activity areas such as administrative and information centre, botanical cum zoological gardens, camp grounds, chalets, bush trails, climbing areas as well as events centre should be established to accommodate the recreational needs of resident and the influx of visitors into the rejuvenated capital city. The interconnected scenic green areas will ensure biodiversity propagation, enhance

ecosystem preservation, improve aesthetics, boost tourism and promote landscape sustainability in the city. Employment opportunities and revenue generated from the activity areas of the resort will make it self-financing, and as well augment city's green economy and revenue base.

Finally, intensive greening and appropriate furnishing of the capital city's overall landscape flowing from effective policy directives, proactive citizen participation and enabling laws coupled with good governance would enable meaningful city transformation that enhances aesthetics, improves urban comfort, enriches liveability, guarantees inclusiveness, boosts tourism potentials, expands green economy and promotes a sustainable landscape. This would reinvent Ado-Ekiti as great city of tomorrow, and serve as a comprehensive intervention approach model for establishing other African green cities.

#### **10.4 Conclusion**

This research study has demonstrated the urgent need to reclaim encroached setbacks, open spaces, and utilize them to create inclusive green areas that promote sustainable socio-economic and environmental development in Ado-Ekiti. The city has experienced rapid urbanization, hastened by its emergence as the Ekiti State capital in 1996. Continuous pressure on inelastic land resources compounded by a lack of planning has created a spatial structure that sprawls into the surrounding regions. Within the city proper, the rate of commercialization is threatening other uses especially residential, public and open spaces, accompanied by uncontrolled change in use and incessant encroachment on setbacks and open spaces. The study found that compliance with statutory requirements is abysmally low and that the vast majority of houses constructed in the city have no approved plans. More than two-thirds of the buildings lack standard setbacks and air spaces to carriageways, adjoining houses, water bodies, power transmission lines and other structures, leading to overcrowding and a dearth of urban greenery. There is a strong tendency to encroach on setbacks, open spaces, public places, sidewalks, and even roadways especially for informal commercial purposes along all categories of roads in the three morphological zones of the city. While citizens are aware of the law, they seem to violate it with impunity.

The negative impacts of encroachment include environmental degradation and obstacles to free pedestrian and vehicular circulation along established lines of movement. The authorities' inability to curtail encroachment derives from a lack of willpower. The preference for hard landscape treatment of spaces around buildings accentuates disorderliness, degradation, flooding, and the lack of open spaces and greenery. While the majority of the study respondents described the environment as fair, they did not rate government's efforts to reclaim encroached spaces highly. While most supported the transformation of all recovered spaces into green spaces, some felt that socio-cultural and economic activities should be accommodated. The respondents were enthusiastic about participating in a city greening exercise. The proposed Ado-Ekiti Urban Greening Master Plan in this research was prepared as a bundle of models, policy directives and strategies for stakeholders to work together to implement, monitor and maintain greenbelts in the city. The plan aims to reclaim all lost spaces and plant, nurture and maintain them as furnished, functional and inclusive green places that promote urban landscape development, and grow biodiversity, mitigate climate change, and ensure socio-economic and environmental sustainability.

The study demonstrated that intensive greening, functional furnishing and the injection of socio-economic activities based on effective transformation strategies, new mind-set, compliance with the rule of law, committed placemaking policy efforts, and good governance could turn around the current situation in Ado-Ekiti. Apart from enhancing aesthetics, urban comfort and liveability, this research also argued for the organisation and integration of the informal sector and promotion of livelihood strategy to accentuate inclusiveness as well as boost green economy and thereby reinvent Ado-Ekiti, the *Ekiti Kete* (Generality of Ekiti) capital, as a great city of tomorrow.

The research makes an original contribution to knowledge by providing data on a spatial structure dominated by residential land use, and establishing the lack of planning of the closely knit core and new development areas in the urban morphology. The study shows that the city is characterized by amorphous expansion into the outlying regions in response to rapid urbanization and commercialization. It also documents the substitution of vegetal cover and open spaces for

developmental purposes, which results in a bare neighbourhood environment in Ado-Ekiti. The research provides fresh data on the existing state of public spaces in the spatial structure in the three morphological zones, which are dominated by residential land use. Fresh data is also set out on the inadequate building setbacks to roadways, hydrological features, and power transmission lines and setbacks and air spaces around buildings. The study highlighted absolute disregard for statutory guidelines. It exposed the general inadequacy of setbacks and air spaces. It thus provides valuable data on the causes of the lack of recreational spaces, open spaces and green landscaping, which result in ecological imbalances, loss of biodiversity, and lost tourist attractions that prevent Ado-Ekiti from becoming a great place.

The research study also provides fresh information on the innate propensity to encroach on open spaces in the city. A unique finding is that while there are high levels of awareness of statutory requirements, there is rampant contravention of such and consequent widespread encroachment. The ineffectiveness of extant planning laws and regulations is also a new finding as well as the fact that encroachment is mainly for commercial purposes. The study provides a comprehensive explanation of the factors responsible for encroachment on public open spaces, ranging from ignorance, to inefficient government control, the desire for monetary gain, ever increasing demand for space for human activities, livelihood and informal trading, and the nefarious activities of land speculators. Finally, the study exposes the authorities' inability to curb such encroachment.

The study also highlighted the direct and implied consequences of the usurpation of public space for aesthetics, environmental quality, recreational opportunities, health, urban comfort, and inclusion in the fledging capital city. The need emanated from the study for concerted effort to reclaim encroached public spaces to re-establish green places in Ado-Ekiti. The resolution to incorporate socio-economic activities into the proposed green spaces is a novel outcome of this research. The study established that the integration of the informal sector to strengthen livelihood strategy, embrace inclusiveness and boost green economy is germane to the success of the greening programme, failing which the people will return to the streets and continue to aggravate carbon footprints. Hence the establishment and regulation of socio-economic activities into

selected green areas, the adoption of placemaking initiatives that encourage citizens to participate in the program, and the operation of the 3Rs of sustainable waste management in the capital city are further original ideas arising from this study. The Strategic Urban Greening Intervention Model for Socio-Economic and Environmental Sustainability developed from this research for Ado-Ekiti Green City can be replicated, not only in other cities in Nigeria, but also in sub-Saharan Africa, given that there is similarity in nature of activities inherent in cities in the continent.

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## APPENDICES

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### Appendix I

#### Population projections

##### The Geometric growth projection

The growth projection assumes a geometric series, which is mathematically expressed as:

$$P_t = P_0 (1 + r)^t$$

where  $P_0$  = initial population

$P_t$  = population  $t$  years later

Using 2001 (208,414) as the base year, and a population growth rate of 2.9% per annum (according to a National Population Commission, Federal Office of Statistics, National Planning Commission, and World Bank Release), the projected population figures for Ado-Ekiti for 2008, 2010, 2015 and 2020 are calculated as follows:

##### Projection for Year 2008

$$P_t = P_0 (1 + r)^t$$

where

$$P_0 = 208,414$$

$$r = 2.9\%$$

$$t = 7 \text{ years}$$

$$P_0 = 208414 (1 + 2.9/100)^7$$

$$= 208414 (1.029)^7$$

$$208414 \times 1.2214 = 254,577.70$$

Therefore, the projected population for the year 2008 is 254,578 people.

##### Projection for Year 2010

$$P_t = P_0 (1 + r)^t$$

where

$$P_0 = 208,414$$

$$r = 2.9\%$$

$$t = 9 \text{ years}$$

$$P_t = 208414 (1 + 2.9/100)^9$$

$$= 208414 (1.029)^9$$

$$208414 \times 1.2934 = 269,562.68$$

Therefore, the projected population for the year 2010 is 269,563 people.

### **Projection for Year 2015**

$$P_t = P_0 (1 + r)^t$$

where

$$P_0 = 208,414$$

$$r = 2.9\%$$

$$t = 14 \text{ years}$$

$$P_t = 208414 (1 + 2.9/100)^{14}$$

$$= 208414 (1.029)^{14}$$

$$208414 \times 1.4922 = 310,995.37$$

Therefore, the projected population for the year 2015 is 310,995 people.

### **Projection for Year 2020**

$$P_t = P_0 (1 + r)^t$$

where

$$P_0 = 208,414$$

$$r = 2.9\%$$

$$t = 19 \text{ years}$$

$$P_0 = 208414 (1 + 2.9/100)^{19}$$

$$= 208414 (1.029)^{19}$$

$$208414 \times 1.7214 = 358,763.86$$

Therefore, the projected population for the year 2020 is 358,764 people.

Appendix II



**University of KwaZulu-Natal, Durban, South Africa**

**FACULTY OF BUILT ENVIRONMENT AND DEVELOPMENT STUDIES**

**(HOWARD CAMPUS)**

**DEPARTMENT OF PLANNING AND HOUSING**

**Reclaiming Setbacks and Open Spaces for Greening and Sustainable Landscape Development in  
Capital Cities: A Case Study of Ado-Ekiti, Nigeria.**

**June, 2015**

**N.B.: Informed Consent**

**This survey is purely an academic exercise. Respondents are hereby assured that responses to questions or any other information given will be treated confidentially. You may also withdraw your participation at any time, should you so wish.**

**Thank you.**

**Please underline applicable response or give a brief response where necessary.**

District.....Neighbourhood.....Street.....

**Section A: Spatial Structure of the Study Area**

**Types, distribution and proportion of land use**

1. What are the types of land uses found in the area?

RES   PUB/INST   COM   IND REL   REC   SER   CIR   UND

2. What are the types and sizes of open spaces available in the area? (Please tick appropriate option(s))

<b>Type of open space</b>	<b>Small</b>	<b>Medium</b>	<b>Large</b>
Organised recreational open space			
Institutional open space			
Religious open space			
Unorganized open space			
Incidental open space			
Undeveloped land			

**Section B: Socio-economic Characteristics of Respondent**

- 3. What is your gender? (1) Male (2) Female
- 4. Which age bracket do you belong? (1) 18-20(2) 20-29(3) 30-39(4) 40-49 (5) 50-59(6) 60-69 (7) 70+
- 5. What is your marital status (1) Single (2) Married (3) Separated (4) Divorced (5) Widowed (6) Others (specify)..... Please indicate your family size.....
- 6. Please, indicate your place of origin? .....
- 7. What is your educational status (1) No formal education (2) Primary education (3) Secondary education (4) Tertiary education (5) Others (specify).....
- 8. What is your employment status? (1) Student (2) Unemployed (3) Retired (4) Employed (informal) (5) Employed (formal) (6) Others (specify).....
- 9. Which income group *per month* captures your status (1) 1-50,000.00 (2) 50,001.00 - 100,000.00 (3) 100,001.00-150,000.00 (4)150,001.00-200,000.00 (5) 200,001.00-250,000.00 (6) Above 250,000.00.

**Section C: Setback and Open Space Characteristics, and Pattern of Encroachment in the Study Area**

- 10. Type of land/building use (1) Residential (2) Commercial (3) Religious (4) Industrial (5) Institutional (6) Recreational (7) Mixed use. If residential, please state the number of room.....
- 11. When was this building constructed? (1) Before 1960 (2) 1960-1969 (3) 1970-1979 (4) 1980-1989 (5) 1990-1999 (6) 2000-2009 (7) 2010 to date.
- 12. On what category of road is this building located?  
(1) primary/ distributor (2) secondary /collector (3) tertiary/ access
- 13. What is the size of your plot? (1) Large size: 30m x 36m (2) Medium size: 24m x 36m (3) Small size: 18m x 36m (4) Others (specify).....
- 14. What percentage of the plot area is developed?  
(1) less or equal to 40%, (2) 41- 49%, (3) 50-59% (4) 60% and above
- 15. Do you have an approved plan for the building? (1) Yes (2) No (3) Don't know
- 16. What is the setback (in meters) from the front of your building line to the side of the road?  
(1) None (2) 0.1- 4.49 (3) 4.5-6.00 (4) 6.1-8.99 (5) 9.0 and above
- 17. What is the building left side air space (in meters)?  
(1) None (2) 0.1-2.99 (3) 3.0-5.99(4) 6.0-8.99 (5) 9.0 and above
- 18. What is the building right side air space (in meters)?  
(1) None (2) 0.1-2.99 (3) 3.0-5.99(4) 6.0-8.99 (5) 9.0 and above
- 19. What is the building rear air space (in meters)?

(1) None (2) 0.1-2.99 (3) 3.0-5.99(4) 6.0-8.99 (5) 9.0 and above

20. Which of the following is your house located along? (1) drainage channel (2) stream (3) river (4) pond/lake

21. What is the setback (in meters) from your building to the drainage channel/water body?  
(1) 0-4.49 (2) 4.5-9.9 (3) 10-14.9 (4) 15-19.9 (5) 20-24.9 (6) 25-29.9 (7) 30 and above

22. What is the frequency of flooding in your area during the rainy season?  
(1) Low (2) Moderate (3) High (4) None

23. What category of power transmission line is located near your building or development?  
(1) Low tension power line (2) Medium tension power line (3) High tension power line (4) None

24. What is the setback (in meters) from your building to any of the identified nearby power transmission line?  
(1) 0-4.49(2)4.5-9.99(3) 10-14.99 (4) 15-29.99 (5)30-44.99(6) 45 and above

25. Is there any form of development within your building setback? (1) Yes (2) No

26. If yes, what type of development? (1) Residential (2) Commercial (3) Industrial (4) Religious  
(5) Storage of building materials (6) Others (specify) .....

27. Is there any development permit for the development within the setback? (1) Yes (2) No

28. If 'no' to question 27 above, what form of treatment is given to the setback?  
(1) Planted with greens (2) Covered with granite chippings (3) Paved with concrete/interlocking blocks  
(4) Left bare (5) Overgrown with weeds (6) Used as refuse heap, strewn with refuse and generally unkempt

29. What use is the setback space put? (1) Trading (2) Light industry (3) Storage (4) Parking (5) Farming  
(6) Horticultural garden (7) Others (specify) .....

30. Is there any development permit for the use or development on the setback? (1) Yes (2) No

31. Are there organised open spaces in this neighbourhood? (3) Available (2) Not sure (b) Not available

32. If available, what type of open space(s) do you have in this neighbourhood?  
(1) Recreational (2) Institutional (3) Historical (4) Incidental (5) Commercial (6) Religious  
(7) Others (specify).....

33. What is the ownership structure of the existing open space(s)?  
(1) Public ownership (2) Public-private ownership (3) Corporate ownership (4) Private ownership  
(5) Others (specify).....

34. What is the existing condition and maintenance of the open spaces?  
(1) Well landscaped and furnished (2) Landscaped but not furnished (3) Left bare (4) Overgrown with weeds (5) Used as refuse heap, strewn with refuse and generally unkempt (6) Encroached with illegal development

35. If the neighbourhood open space is incidental, what is the existing condition?

(1) Covered with greens (2) Covered with granite chippings (3) Paved with concrete/interlocking blocks (4) Left bare (5) Overgrown with weeds (6) Used as refuse heap, strewn with refuse and generally unkempt

36. What is the nature or type of encroachment on setbacks and open spaces in the area?  
(1) Residential buildings (2) Trading shops (3) Workshop/ light industry (4) Churches/praying ground (5) Refuse heap (6) Others (specify).....

37. What is the level of encroachment on setbacks and open spaces in your area?  
(1) None (0%) (2) Very low (1-20%) (3) Low (21-40%) (4) Moderate (41-60%) (5) High (61-80%) (6) Very high (81-100%)

38. What factor is mostly responsible for encroachment on setbacks and open spaces around you?  
(1) Lack of government control (2) Demand for buildings for various uses (3) Ignorance and carefree attitude to good quality environment (2) Desire for economic benefit (4) Activities of land speculators (5) Others (specify).....

39. By your own assessment, on what aspect of the environment is the effect of encroachment more obvious?  
(1) Health and wellbeing (2) Movement and circulation (3) Aesthetics and environmental Quality (3) Relaxation and recreation (4) Safety and security (5) Rental and property values (6) Others (specify).....

40. How does the government respond to encroachment on setbacks and open spaces in this neighbourhood?  
(1) Prosecution of offenders (2) Demolition of encroached development (3) Education (4) Management of encroachment (5) Ignoring the encroachment (6) Others (specify).....

**Section D: Effects of Statutory Provisions and Extant Rules on Development Control of Setbacks, Open Spaces and Green Landscaping**

41. Are you aware of town planning regulations on setbacks, open spaces and green landscaping?  
(1) Am aware (2) No response (3) Not aware

42. How did you treat the remaining spaces around your building?  
(a) Hard landscaping only (b) Soft landscaping only (c) More of hard landscaping than soft landscaping (d) More of soft landscaping than hard landscaping (e) Neither hard landscaping nor soft landscaping (f) No response

43. What is your assessment of the quality of environment in the city generally?  
(1) Very poor (2) Poor (3) Fair (4) Good (5) Very Good (6) No response

**Section E: Government efforts in Reclaiming and Utilizing Setbacks and Open Spaces in the City**

44. Give your opinion on the efforts of government in reclaiming setbacks and open spaces in the city?  
(1) Very poor (2) Poor (3) Fair (4) Good (5) Very good

45. In what way(s) are you affected by the reclamation of setbacks and open spaces by the government in the city? (1) Loss of building (2) loss of plot of land (3) loss of shops (d) loss offence/gatehouse (e) Others (specify).....

46. Do you agree that using the reclaimed setbacks and open spaces for greening will improve the quality of environment in the city? (1) Strongly agree (2) Agree (3) Undecided (4) Disagree (5) Strongly disagree

**Section F: Peoples' Priority and Participation on Greening Programme**

47. Do you agree that the reclaimed setbacks and open spaces should be used exclusively for greening the city? (1) Strongly agree (2) Agree (3) Undecided (4) Disagree (5) Strongly disagree

48. If you disagree with question 47 above, what other use(s) can be incorporated into the greening of reclaimed setbacks and open spaces programme in the capital cities? (1) recreational use (2) commercial use (3) services (4) parking facilities (5) others (specify) .....

49. Are you willing to participate in greening and transformation activities/programmes in the city? (1) Strongly willing (2) Willing (3) Not sure (4) Unwilling (5) Strongly unwilling

50. Any other relevant information?  
.....  
.....

**Thank you.**

Administrator.....

Date.....

## Appendix III



**University of KwaZulu-Natal, Durban, South Africa**  
**FACULTY OF BUILT ENVIRONMENT AND DEVELOPMENT STUDIES**  
**(HOWARD CAMPUS)**  
**DEPARTMENT OF PLANNING AND HOUSING**

**Reclaiming Setbacks and Open Spaces for Greening and Sustainable Landscape Development in  
Capital Cities: A Case Study of Ado-Ekiti, Nigeria.**  
**June, 2015**

**Target key informant interview**

**Target key informants:** Special assistants to the Executive Governor on environment, officials of relevant ministries at state and federal levels, departments, task forces, and local government.

**Interview guide**

Extant laws and statutory provisions on land use and development control

Statutory regulations on setback and open spaces in the state

Institutional arrangement for the implementation of planning laws, regulations, byelaws, and codes in development control

Proportion of the land use devoted to open space development in the city

The extent of encroachment on setbacks and open spaces in the city

Factors responsible for this magnitude of encroachment on setbacks and open spaces in the city

Effects of encroachment on setbacks and open spaces in the city's landscape and environment

Efforts of government in reclaiming setbacks and open spaces in the city

Problems arising from the efforts of government in reclaiming setbacks and open spaces

Are these efforts of government in reclaiming setbacks and open spaces generating some problems in the city?

Peoples' priorities and economic activities for consideration in the greening programme.

## Appendix IV



**University of KwaZulu-Natal, Durban, South Africa**

**FACULTY OF BUILT ENVIRONMENT AND DEVELOPMENT STUDIES**

**(HOWARD CAMPUS)**

**DEPARTMENT OF PLANNING AND HOUSING**

**Reclaiming Setbacks and Open Spaces for Greening and Sustainable Landscape Development in  
Capital Cities: A Case Study of Ado-Ekiti, Nigeria.**

**June, 2015**

### **Focus group discussion**

**Stakeholders for focus group discussions:** Special assistants to the executive governor on environment, planning and development matters, key officials of relevant ministries, departments, parastatals, task forces, local government; district chiefs, politicians, chairmen of community development, markets, transport and landlords' associations; religious, trade union, artisan and youth leaders.

**Topics of discussion:** Issues in land development, space utilization, government role and public participation in the city the planning; and the way forward.

**Appendix V**



**University of KwaZulu-Natal, Durban, South Africa**  
**FACULTY OF BUILT ENVIRONMENT AND DEVELOPMENT STUDIES**  
**(HOWARD CAMPUS)**  
**DEPARTMENT OF PLANNING AND HOUSING**

**Informed Consent Letter**

My name is Ojo-Fajuru, Joseph Olufemi. I am an Urban and Regional Planning PhD candidate studying at the University of KwaZulu-Natal, Howard College Campus, Durban, South Africa. I am interested in learning about the extent of encroachment on setbacks and open spaces in Ado-Ekiti, and how these spaces can be reclaimed and reestablished as green areas to enhance the provision of infrastructural facilities, improve the quality of environment, upgrade the standard of living, and thereby elevate the status of the city as a befitting capital of Ekiti State.

Please take note of the following that:

- the confidentiality of the information you give is guaranteed, and your anonymity is assured as your inputs will not be attributed to you in person, but reported only as a population member opinion;
- the interview may last for about 15 minutes;
- any information given by you cannot be used against you, and data collected will be used for research purposes only;
- data collected will be kept in storage and destroyed after five (5) years;
- you have a choice to participate, not to participate, or to stop participating in the exercise any time as it pleases you. You will not be penalized for taking such an action;
- your involvement is purely for academic purposes only, and there are no financial benefits involved.

My contact details are: Cell: +27 63 3088965 / +234 816 578 2777  
 E-mail: [211560777@stu.ukzn.ac.za](mailto:211560777@stu.ukzn.ac.za)  
[femlee459@yahoo.com](mailto:femlee459@yahoo.com)

My Supervisor is Prof. Ambrose Adebayo (Emeritus Professor)  
 Located at the School of Built Environment and Development Studies  
 University of KwaZulu-Natal, Howard College Campus, Durban 4001.  
 E-mail: [adebayo@ukzn.ac.za](mailto:adebayo@ukzn.ac.za); Phone No: +27 31 209 4122

You may also contact the Research Office through:  
P. Mohun, HSSREC Research Office, UKZN, Westville Campus. Tel. No: +27 31 209 4122, [mohunp@ukzn.ac.za](mailto:mohunp@ukzn.ac.za)

Thank you for your contribution to this research.

**DECLARATION**

**I....., hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participate in the research project. I understand that I am at liberty to withdraw from the research project at any time, should I so desire.**

SIGNATURE OF PARTICIPANT

DATE

.....

.....

## Appendix VI

### Gatekeepers' permissions

#### A. Gatekeeper's permissions from Ado-Ekiti Local Government

	<i>Ado-Ekiti Local Government</i>	
		Local Govt. Secretariat, Igirigiri Road, P. M. B. 5313, Ado-Ekiti, Ekiti State.
Our Ref: AELG/172/XXX/130	Your Ref: _____	Date: 14th. May. 2015

All Councilors,  
Ado-Ekiti Local Government,  
Ado-Ekiti,  
Ekiti State,  
Nigeria

**TO WHOM IT MAY CONCERN**

The bearer, **MR. OLUFEMI OJO-FAJURU** is a **Ph. D** student from the University of Kwazulu- Natal, Durban, South Africa. I hereby introduce him to you. He will tender his identity card for proper recognition. He is here to carry out his research on setbacks and open space in Ado-Ekiti environment. His project is purely an academic exercise and requires cooperation and participation from all and sundry in all the Wards in Ado-Ekiti Local Government. He has approached the Local Government Authority for permission and assistance during the project and urges you to support him as much as possible as he moves from one place to another to carry out his field study.

Please give him necessary assistance as much as you can.

Thank you

**B. Gatekeeper's permission from Ekiti State Ministry of Lands Housing and Urban Development**

  
**EKITI STATE GOVERNMENT**  
**MINISTRY OF LANDS, HOUSING AND URBAN DEVELOPMENT**  
*Phase V, State Secretariat Complex, Ado-Ekiti, Ekiti State, Nigeria.*

Your Ref \_\_\_\_\_  
*All Correspondence Should be addressed to the Permanent Secretary, quoting*

Our Ref URPO/07/02 Date 10<sup>TH</sup> JUNE 2015

TO WHOM IT MAY CONCERN

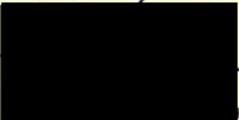
**LETTER OF INTRODUCTION IN SUPPORT OF MR OLUFEMI JOSEPH OJO- FAJURU**

I hereby introduce the bearer, Mr Olufemi Ojo- Fajuru to you. He is a Ph.D student from the University of KwaZulu-Natal, Durban, South Africa. His identity card is the proof of his studentship at the University.

He is currently carrying out his research as an academic exercise on setbacks and open spaces in Ado Ekiti municipality. He solicited permission for the exercise from the Ministry, and I crave your support for him to undertake his field study successfully and as well interview officials of the Ministry and related parastatals.

Kindly give him necessary assistance to the best of your ability, please.

Thank you for your cooperation

  
DIRECTOR OF URBAN AND REGIONAL PLANNING  
& CREAN DEVELOPMENT, ADO-EKITI

[www.w.w.ekitistate.gov.ng](http://www.w.w.ekitistate.gov.ng)

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Egbewa Layout,  
Ado - Ekiti, Ekiti State.

23rd June, 2015  
Date: \_\_\_\_\_

## TO WHOM IT MAY CONCERN

The bearer, MR, OLUFEMI OJO-FAJURU is a Ph. D Research Candidate from the University of KwaZulu Natal, Durban, South Africa. He is in Ado-Ekiti to carry out his research on the environment. His project is purely an academic exercise that requires cooperation and participation from all the people in the city. He came for assistance from the Company on issues related to security in the city, and we hereby implore you to support him to the best of your ability on his field work.

Thank you.

  
Michael Oyewole,  
Managing Director.

  
SIGN  
DATE