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ADAPTABILITY OF PARTICIPATORY BACKCASTING TO E-BACKCASTING FOR INCLUSIVE SUSTAINABLE CITY VISIONING FOR AFRICAN CITIES: A PROTOTYPED STUDY OF ABUJA, NIGERIA

By

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787661

A thesis submitted to the Faculty of Engineering and the Built Environment, University of Witwatersrand, Johannesburg, in fulfilment of the requirements for the Degree of Doctor of Philosophy

Johannesburg, July 2019

Declaration

I declare that this thesis is my unaided work, submitted for the degree of Doctor of Philosophy at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in any other university.

Part of this thesis was presented in 2016 at the Regional Urbanism in the Era of Globalisation conference held in Huddersfield, 3rd–5th February, 2016, under the title; *A backcasting Approach to the Re-visioning of a Sustainable Desirable Future of Abuja, Nigeria. A second article titled Inclusivity in the Implementation of Federal Capital City vision in a Developing Country. The Nigerian experince published in Environmental Technology And Science Journal, 10(1), June 2019 and the third article titled Backcasting the Abuja City vision published in Research Journal of the Environment ISSN -1597-4488*



i

(Signature of candidate)

17th day of July 2019

Abstract

The implementation process of the envisioned future for Abuja as the capital city of Nigeria since 1975 was ill-fated from the start, mainly due to the pattern of exclusion in the governance style, as well as the rigid execution guided by a modernist-inspired master-plan. The resultant sustainability challenges facing the city today include escalating segregation among its rich and poor residents, a hostile relationship between residents and city-administration and a stubborn indifference to the city's ecological footprint. Provoked by these challenges, this study applied action-research to guide the prototyping of e-backcasting for sustainable city transitioning for Abuja over the next 50-years, with the key focus on participation and inclusivity. The potential of e-backcasting as a participation enhancement-tool was explored by bridging e-governance and conventional backcasting (face-to-face) while leveraging the rapidly maturing Web 2.0 socio-media tools. The process involved four iterative steps which entailed the application of four social-media tools (e-mails, Facebook, blogs and WhatsApp). Of the 644 possible participants initially contacted, 302 participants consented (26 on email, 58 on Facebook, 9 on blogs and 209 on WhatsApp) and remained engaged across all four iterations. Of these, 34 participants were deemed to be experts while 268 participants were deemed to be common citizens. 147 of the 302 participants reported that they were generally satisfied with their participation experience and felt that the approach would be useful for inclusive city-planning in Nigeria especially in facilitating responsive pathways for sustainable city transitioning. In contrast, 59 participants reported dissatisfaction in their experience with the process while 96 participants reported an undetermined/neutral experience. The key inadequacies with the recruitment, participation and inclusivity mainly related to time and technology access, language and low-familiarity with the process and subject-matter of the study. The study recommends further prototyping within Abuja's e-Governance platform in order to allow for additional evaluation and establishment of institutional capacity for full implementation. In addition, the study concludes that the initial process of reaching out for awareness-raising and recruitment of participants constitutes the most critical stage towards ensuring participation and inclusivity.

Keywords: backcasting, e-backcasting, e-governance, participation-oriented backcasting (PBC), visions and inclusivity

Dedication

I dedicate this research to God the Father, to Jesus, His only begotten son, my Lord and Saviour, and the Holy Spirit, my helper. To my beloved husband, Prof. Emmanuel Achuenu, who believed in my ability and did all within his capacity to ensure I achieve this great feat.

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Acronyms and Abbreviations

AR	Action Research
AGIS	Abuja Geographic Information System
AMAC	Abuja Municipal Area Council
ARCADIS	Design and Consultancy for Natural and Built Assets
BRT	Bus Rapid Transport System
CAPP	Community Action for Popular Participation
CBO	Community Based Organisation
COHRE	Centre on Housing Rights and Evictions
FCC	Federal Capital City
FCT	Federal Capital Territory
FCDA	Federal Capital Development Authority
FCTA	Federal Capital Territory Authority
FCTDA	Federal Capital Territory Development Agency
FHA	Federal Housing Authority
MDGs	Millennium Development Goals and Strategy
MFCT	Ministry of Federal Capital Territory
NGO	Non-Governmental Organisation
NPRS	Nigeria's Poverty Reduction Strategy
FSSD	Framework for Strategic Sustainable Development
FEEDS	Federal Economic Empowerment/Development Strategy
FLUA	Federal Land Use Act
GIS	Geographic Information System
G2B	Government to Business
G2C	Government to Citizen
G2G	Government to Government
GGEI	Global Green Economy Index

ISCO	International Standard Classification of Occupation
ICLEI	International Council of Local Environmental Initiatives
IPPUC	Institute for Research and Urban Planning of Curitiba
LEEDS	Local Economic Empowerment and Development Strategy
NHP	National Housing Policy
NHP	National Housing Programme
NPRS	Nigeria's Poverty Reduction Strategy
NEEDS	National Economic Empowerment/Development Strategy
PBC	Participation-Oriented Backcasting
PPP	Public Private Partnership
PSO	Private Sector Operators
STDA	Satellite Towns Development Agency
SERAC	Social and Economic Rights Action Centre
SPT	Strategic Planning Tool
STDA	Satellite Town Development Authority
SWOT	Strengths, Weaknesses, Opportunities and Threats
GAIA	Greater Abuja Indigenous Assembly
WEP	Women Environmental Programme
WCED	World Commission on Environmental Development

1 CHAPTER ONE: BACKGROUND TO THE STUDY

1.1 Introduction

As cities continue to evolve, both in physical development and management processes, their planning and management becomes much more challenging, primarily because of critical constraints in their resources and capacity for providing infrastructure and dealing with the diversity of needs and ways of life of their residents, (Watson, 2009; Jenks and Jones, 2009; Field and MacGregor, 2018). This has left urban planners and city administrators with the challenge of innovating urban governance in order to cope with the management of the cities. Innovation in urban governance is making it necessary for cities to be managed through systematic policies and visions in ways that make them more desirable (MacCallum, 2012; Gehl, 2013). The responsive policies should be inclusive especially based on addressing the quality of life through active engagement with the community and include interventions that protect and conserve the environment at stable levels (Hecht, 2012; Ruhiiga, 2013).

One important approach urban planners now apply towards tackling these challenges is by facilitating higher levels of inclusion and participation in decision-making, both in the long-term city vision and plans (especially for transitioning towards sustainable city goals). The transitioning process have been achieved through improved instruments of urban planning that focus on encouraging continuous and inclusive participation of citizens with a view towards sustainable city outcomes, such as improved socio-economic well-being, health and infrastructure. Kentworthy, (2006) has also argued that for an improved administration that takes inclusivity into account, there is the need for cities to function within two fundamental processes. The first requires engaging in vision-oriented progressive thinking that facilitates on-going and lasting change in society. The second involves building an active and inclusive, participatory community-oriented structure. Participation is, primarily, a means of legitimising any decision-making process and fostering accountability on the part of the people for whom such plans are designed, whereas inclusive participation in city visioning and development provides residents with an avenue to develop their full potential (Kentworthy, 2006). Such participation also facilitates improved access to urban

opportunities in order to make meaningful contributions towards the envisioned sustainability goals.

UN-HABITAT, (2010) suggests that for any city to attain sustainable development and meaningful inclusiveness across the social, economic and environmental dimensions, an understanding of how each aspect contributes individually to urban dynamics and urban structure is essential. In contemporary times, there have been an increasing number of cities that have successfully evolved inclusive and collective visions and objectives to guide their urban plans, thus embedding systematic understanding of the required practices and processes. Some typical world examples include Copenhagen, Portland and Curitiba. These cities and their resultant sustainable city outcomes explain why visionary leadership and consistency of vision is paramount for effectiveness in inspiring and facilitating the culture of participation of people in their community's visions and building. But for the purpose of this study, the focus is on using Curitiba in Brazil as a good case study (Pucher and Buehler, 2010; Saraiva et.al, 2018). Curitiba has pioneered the sustainable city pathway since the 1960s, and has had success through the combination of several strategies, including an iterative application of backcasting techniques. The city has also consistently applied inclusive processes with emphasis on stakeholder engagement in their decision-making and has had a coherent and transparent vision with explicit strategies for achieving the targeted outcomes and goals. Curitiba also demonstrates political will and motivation which has also guided their actions for on-going improvements. The experiences and insights from this city can thus inspire and facilitate inclusive urban development elsewhere, thereby building proven practices in inclusive participation, involving all actors and sectors (Kantabutra and Vimolratana, 2009).

In contrast, the conceptualisation and subsequent planning of Abuja City in Nigeria occupies a unique spot (in this regard). The new city was initially aimed at applying the lessons learned from the dysfunctionalities of Lagos as a capital city and thus ensure a more co-ordinated and coherent city which would serve as a unifying symbol for Nigeria. Unfortunately, within close to 40 years since its establishment and growth, Abuja has entered its own phase of dysfunctionality and is thus in need of significant transformation in order to restore its vision and promise for Nigeria (Okpala, 2009; Oduwaye, 2009; Oloyede et.al, 2010; Fourchard, 2011). In order for this to happen, the required transformation needs to be guided by the two critical

components of sustainability and inclusivity, which have been consistently ignored in previous visions and master plans (which includes the 1979 Plan by Thomas Todd and Planning Associates, the 1980 Plan by Kenzo Tange and those of the Doxiades Associates' Plan) for the city. The gap or challenges here is that inclusivity which is the hallmark of sustainability in the previous methods of planning and decision-making processes were either inadequate or faulty

Whereas the sustainability agenda and the required interventions for Nigerian cities and their built environments has been logically studied and disseminated in academic publications, studies on mechanisms to evolve sustainable city visions towards the necessary transitions in an inclusive and equitable approach remain extremely limited. Although inclusion is a word frequently used to indicate uncertainties related to marginalised populations, although in practice it goes beyond this definition. Feldman and Khademian (2007: 206) termed inclusive practices as generating ‘‘communities of participation’’. Inclusive practices involve high participatory processes that encompass many participants, with large representation of the public and a collective community feedback, used in prompting policy decisions. Backcasting is commonly used in contrast with the forecasting technique, as it is said to complement the thinking in forecasting through the approach of “inventing the future” instead of "adapting to the future" (Robinson, 1982: 344). On the other hand, participatory oriented backcasting is one type of backcasting technique applied in strategic planning, where participation constitutes one of the primary elements of the process. It has therefore become beneficial to use backcasting because, aside from its normative nature (evaluating standard), it is argued to be highly appropriate for long-term problems which need significant transformations and long-term solutions. Backcasting can also entail an assessment of the extent to which a plan is likely to lead to the desirable vision or result in a dystopia (an undesirable future). As a strategic planning tool, backcasting facilitates flexibility in the pursuit and execution of the vision primarily guided by the re-evaluation of priorities on an on-going basis, thereby allowing urban development to change the course of action when required, in order to keep on track towards the target outcome or vision.

In line with Feldman and Khademian (2007: 206), this study focuses on using both participation and inclusion to refer to networks made not only between individuals and group towards participatory decision-making. It also tried to describe links

across the re-visioning process, platforms engaged, timing, participatory and inclusion issues observed in the course of the prototype exercise. This study therefore aims, not only to leverage the opportunity towards tackling Abuja's challenges, but also to argue for an inclusive visioning process for sustainable city transitioning. In so doing, the study goes further to assess the extent to which adopting e-backcasting processes could contribute towards the goal of an enhanced inclusive visioning process for sustainable urban development in developing countries, especially in sub-Saharan Africa.

1.2 Statement of the Problem

Nigerian cities, and in particular, the Federal Capital Territory (FCT) and FCC in Abuja, are confronted with peculiar challenges that make the attainment of a sustainable city agenda an almost impossible task. The most significant problem entails the range of complexities faced in the implementation of the original FCT plan based on a comprehensive master plan, towards achieving the vision for the city (Ubani et.al, 2014). The Nigerian government had envisioned Abuja to become the archetype of an African utopia, especially through symbolising a unified Nigeria across cultural, tribal, ethnic, economic and social divides. Although the resultant master plan has gone through four key cycles of implementation and revision, the grand utopian plan was ill-fated, mainly due to the pattern of exclusion, rigidity, and inequality used both in its conceptualisation as well as in the execution of the vision such that for example, slum development has now become a vital characteristic of the city (Ebo, 2013).

The designed structure and style of governance in Abuja has led to many inadequacies, persistent failures in implementation processes, as well as misuse and mismanagement of urban land among other resources. These challenges primarily arise from the centralisation of management, where visions, plans, and policies assume a top-bottom approach (Ogbazi, 2013) both in conceptualisation and execution. In essence, residents are continually burdened with bureaucratic and technocratic procedures, despite the fact that these visions were meant to lead to a city that would serve its residents better. In particular, the low involvement and contribution of the urban poor in decision-making exacerbates their socio-economic hardships, as their everyday coping practices end up contravening such

visions and the resultant masterplan policies, especially during their implementation processes.

The continuous exclusion of citizens in the decision-making and the planning process of the city has exposed the city to more complex challenges, mainly due to the on-going broadening gap between decision-makers (very often the elites) and the governed (very often the poor) (Ade and Afolabi, 2013). The growing difference stems from continued dependence on the use of the colonial-style approach to urban planning, which ends up reinforcing the spatial divide between areas for ‘rulers' and those for ‘subjects.' Accordingly, a majority of the citizens have learned not to rely on government's leadership and have instead devised several coping strategies as a means of addressing their day-to-day needs and thus not meaningfully aligning their actions towards helping the government succeed in its pursuit of the initial vision for the city (Akinola and Adesopo, 2014).

These individualistic approaches to life, where self-interest is prioritised over collective or national interests results to a scenario which mirrors the ‘tragedy of the commons' (Crowe and Science, 1969; Turner, 1993; Moore and White, 2010). As long as the pursuit of such personal interest persists in Abuja, residents will continue to be constrained with regard to the kind of choices they make about how and where they live, and inequality is thus likely to continue escalating, thus undermining the social and economic links that characterise a vibrant and thriving city. In order for Abuja to transform into an inclusive city, it must systematically address critical issues such as the growing segregation between its rich and poor residents, the lack of reasonably priced housing and the hostile relationship between the community and city administration. The city must address the development challenges of its urban neighbourhoods as currently characterised by increased land values and the on-going maginalisation of its lower-income working households and small businesses.

Drawing from the arguments above, the laxity and failure to adhere to the implementation of the vision and goals for the Abuja master plan could also be attributed to a naive view on the master plan as a rigorous technocratic tool which would automatically co-here practices and behaviour of citizens towards the vision (Agbola, 2006). Alkali, (2005) posits that to plan for sustainable urban growth in Nigeria, at hand is essential for unswerving involvement of citizens in decision-

making as a priority towards ensuring the success of any vision, plan or policy. With adequate inclusion and meaningful participation of actors in any planning process, citizens remain committed to supporting continued execution of related programmes. In the case of Abuja the unsustainability of the city is as a result of poor implementation of the master plan and lack of adequate leadership and effective citizen participation. Thus the inability to deliver the expected growth and transformation envisaged for the city over time has resulted in the inability of the city plan to deliver the growth and transformation to which it had initially aspired. These shortfalls make master planning approaches ineffective, primarily because the resultant master plans emerge from a paradigm of the linear model of rational plans driven by experts and politicians and are mainly based on forecasting techniques. Which thus explains to a large extent, why such master plans fail within long-term planning processes, especially in the context of dynamic change, when many of the underlying trends are part of the challenge to be addressed (Dreborg, 1996).

Guided by this background, the principal argument of this study is that a collective city vision-process and outcome should be all-inclusive and primarily guided by consensus around a desirable future state. It goes a long way in informing the current and subsequent actions of a diverse range of city actors, with the objective of cumulatively approaching the envisioned future state. Abuja city is growing more rapidly than what conventional urban planning processes can address on its own. In particular, the traditional 20-25 year comprehensive spatial master plan is not dynamic enough to keep pace with the changing trends or to adjust fast enough to new priorities if and when necessary. Such master plan approaches would only be credible where they emerge from an inclusive collective vision, and thus serve as one of the tools and mechanisms of steering towards the envisioned future state. In this situation, an exclusively planned city would influence the level of success or failure of the urban planning and management strategies applied in its development. It is in contrast to this background that this study hypothesised participatory-oriented e-backcasting as a Strategic Planning Tool (SPT) towards addressing lapses in the previous re-visioning processes in order to ensure a more responsive sustainable city vision for Abuja.

1.3 Research Questions

Arising from the perspective of an inclusive backcasting approach to a sustainable city visioning, the critical question that guided the study was as follows;

- What is the adaptability-potential of a participatory-oriented backcasting to an e-backcasting process aimed at facilitating an inclusive, bottom-up and top-bottom interaction towards a sustainable city vision for Abuja city?

The sub-questions of the study were therefore conceptualised as follows:

- What are the current global methodological approaches to sustainable city development which could guide the process of inclusive bottom-up and top-bottom participation towards a desirable future vision for Abuja?
- What has been the level of bottom-up and top-bottom participation and inclusiveness in the previous methodological approaches used in the Abuja vision and implementation of the resultant city visions and plans to date?
- To what extent can the adaptation of backcasting to an online e-backcasting platform enhance such inclusiveness and participation for Abuja?
- To what extent could the enhanced inclusiveness impact awareness and sense of ownership of the vision among various participants during e-backcasting application?

1.4 Aim of Study

The study aimed at testing the applicability of e-backcasting within the Nigeria context by substantiating on the adaptability-potential of the commonly reported participatory-oriented backcasting process to e-backcasting with a view to facilitating an inclusive, bottom-up and top-bottom interaction towards a sustainable city vision for Abuja city.

1.5 Objectives of Study

Arising from the stated aim, as well as the research questions above, the objectives of the study were articulated as follows;

- Appraise current global methodological principles and criterias of inclusive approaches towards bottom-up and top-bottom participation that could inform sustainability pathways for the Abuja city vision
- Examine the past methodological approaches used in envisioning and implementing the Abuja city vision(s) in order to assess the degree of sustainability and bottom-up and top-bottom participation within a backcasted and sustainable city framework
- Conceptualise and operationalise prototype-oriented action research based on an e-backcasting platform and evaluate its adaptive potential for an inclusive city vision, the extent of participation and inclusiveness achieved
- To appraise how participation influences and impacts on participants' awareness and understanding of a sustainable city, as well as their sense of ownership of the sustainable city vision generated in the process

1.6 Working Hypothesis

Upon careful study of the approach since 1975 when Abuja was established as a Federal Capital Territory (FCT), in which the Federal Capital City (FCC) lies, and after careful review of the model of administration of FCC and FCT, it was observed that although the process of creating the territory began with consultation with different stakeholders around the country, the process of building the capital city and the territory later became a top-bottom approach (Ebo, 2013). All decisions in the development of the FCC and FCT have been made by technocrats (civilian political leaders, military leaders, administrators, bureaucrats, architects and planners, civil and electrical engineers) from different walks of life from the beginning in 1974 until the capital city was inaugurated on 2 December 1991. Consequently, the majority of the inhabitants of the city have been left out of the decision-making process and the resultant city is highly unequal in the provision of urban amenities, housing supply, and it is growing without a sustainable city vision.

The weakening effect of linear and rigid city planning processes and their related exclusion of stakeholders in decision-making weaken the chances of achieving sustainable city goals, especially within developing countries now experiencing enormous backlogs in urban infrastructure, services, governance or management capacity. The challenge calls for re-imagining city visioning and planning processes in a manner that contributes towards ensuring inclusive and broader

support of city visions while also facilitating ongoing feedback loops for the required pathway corrections in the implementation process in the pursuit of the vision. The rapidly maturing Information Communication Technology (ICT) and media tools offer enormous potential towards achieving enhanced participation and inclusiveness, primarily through the application of an adapted participatory backcasting towards an online e-backcasting process and method.

In contrasts, backcasting is a much more empowering technique for sustainable city planning, mainly because it challenges stakeholders towards a collective approach to the desired future. Participation-oriented e-backcasting is therefore hypothesised to be a mechanism that could facilitate a shift from the typical linear and rigid experiences of the forecasting approach inherent in conventional master planning. The essence is to inclusively imagine alternative pathways that could lead to a successful outcome in the future when a combination of both top-bottom and bottom-up interactions are meaningfully facilitated through tools and platforms for online interaction among other strategies or methods. In its turn, the study hypothesised that such an adaptation to e-backcasting would facilitate the process of inclusivity, envisioning process and sense of ownership into the implementation stages of the vision. Therefore in summary the assumptions drawn for the study includes the following:

- Ongoing urban dysfunctionalities in spite of multiple policy and master plan experiences
- Inadequate understanding as to why such policies and urban planning failures recur and perpetuate
- Inadequate involvement and contribution of different role players bottom up hypothesised to be key constituting factors in the ongoing city dyfuncttuionalities
- Assessment of the application of an inclusive broad-based process hypothesised to be a critical mechanism of meaningful participation for broad based vision and support
- In line with the key elements of participatory backcasting, one main contribution of this study to the body of knowledge through findings that is derived is the understanding derived from adapting a prototype interactive action participatory oriented e-backcasting approach within the dynamic envisioning

context of a desirable future vision as against the conventional face-to-face backcasting approach with Abuja city as a case study

1.7 The Motivation for the Study

Given its affiliation within future studies, backcasting is an exceptional strategic planning approach for solving complex and uncertain problems such as those facing Abuja city today. In its various forms and practices, backcasting demonstrates that the future should not be viewed as a linear path from the past through the present, but rather as comprising of alternative pathways which need to be sensitively defined and prioritised in order to guide action for future outcomes (Jackson, 2011). Apart from its linearity, forecasting (as primarily used in planning of Nigerian cities) is only useful in addressing short-term problems. Primarily, it relies on current trends in order to predict the future based on the dominant historical trends to the present moment. Forecasting, therefore, cannot address the complexity involved when ‘’breaking-trends’’ constitutes a fundamental requirement for turning away from the business-as-usual trajectory, and if blindly applied in that context, it is unlikely to lead to sustainable solutions merely through incremental change.

Studies on backcasting and sustainability transitions demonstrate the extent to which participatory-oriented backcasting has been extensively employed in developed countries such as the United States of America (USA), Canada, and Sweden, as well as in several other European and Asian countries with hardly any case reported from Africa. As a planning approach, backcasting was first used in the early 1970s in the USA to address energy challenges (Lovins, 1976). In the last two decades, studies applying the approach are focusing more on achieving global to local sustainable-future visions around community needs such as housing, transportation, and agriculture. Other related applications are in environmental and urban development practices, especially towards adaptation to climate change (Becker, 2010; Svenfelt et.al, 2011; Wangel, 2011; Wehrmeyer et.al, 2012, Olsson et.al, 2015; Achuenu and Irurah 2016). A GIS-based backcasting approach has also been pioneered towards facilitating sustainable spatial planning and technological development, as reported in Akintan, (2014).

Equally, a shift towards stakeholder participation with a focus on follow-up, geared towards the pursuit of sustainable futures has been applied in the Netherlands, Canada, and Sweden. Related studies include Quist and Vergragt (2006), Quist, (2007) and Carlsson-Kanyama et.al, (2008). These studies applied various participatory approaches in convening and involving stakeholders (particularly professionals) drawn from a pool of citizens, consumers or end-users, within organised workshops or conferences. Other reported platforms used for convening participants are focus groups, scientists'-stakeholder workshops, policy exercises, participatory modelling, citizen juries, consensus conferences, and participatory planning approaches (van Marjolein and Rijkens-Klomp, 2002).

In contrast to the diverse e-backcasting studies globally, only a few cases from Africa have been reported and mainly from South Africa, Tanzania, and Botswana. Seward, Xu and Turton (2015) explored ways to improve groundwater governance in Ostrom, South Africa, through backcasting by combining practitioner experience and the Ostrom city design ideology. One of the limitations of the method is the use of one person's knowledge to characterise the approved culture and the use of the same person's standpoint to identify constraints and interferences in the backcasting process. The purpose of singular knowledge undoubtedly could escalate the boundaries of subjectivity and bias as is usually associated with self-reporting by participants in qualitative methods. Van der Voorn et.al, (2012) put forward a technique on how a participatory backcasting approach, when combined with an adaptive administration, could be used towards implementing different and dynamic climate adaptation strategies and policies for coastal regions. With an example from South Africa, the study demonstrated its applicability for the Breede-Overberg region where a catchment management strategy had already been developed. Faldi, (2014) reports on a pilot study testing the use of an alternative scenario backcasting approach for supporting planning for local adaptation to climate change in a peri-urban area of Dar es Salaam's coastal plain in Tanzania. The study successfully engaged a combination of a backcasting methodological approach with the theatre of the oppressed as a method of meaningful participation (Boal, 1995).

However, from an initial exploratory search for similar studies focusing on Nigeria, no evidence emerged on the application of either backcasting or e-backcasting in any domain or field of knowledge. As a result, it appears that numerous studies on

the reason why urban master planning approach, visions, and policies fail have been pursued without systematic efforts towards the consolidation of practical measures in support of a comprehensive strategy to deal with such failures. In particular, there seem to be no studies on approaches for either re-imagining the city vision for Abuja or any other urban areas in Nigeria. Most studies merely end with appraising and evaluating various urban planning methods and their related challenges and developing alternative frameworks by various authors (see, for example, Ikejiofor, 1997; Ilesanmi, 1998; Abumere, 2001; Oyesiku, 2004; Agbola, 2006; Jiriko, 2008; Elaigwu, 2009; Essien et.al, 2009; Ogbazi, 2013; Ebo, 2013; Umoh, 2012; Adeponle, 2013; Wapwera and Egbu, 2013; Okoro, 2014; Ubani et.al, 2014 and Elleh, 2016). However, none of the studies accessed to date has engaged in any form of alternative strategic approaches that could address the challenges of city transitioning, inclusively and collectively.

Based on the literature available to date, the arguments thus far indicate and reflect a critical knowledge gap in the area of articulating and applying transformational approaches that integrate and encourage inclusiveness in stakeholder-driven visioning and sustainable city transitioning processes. Another gap in knowledge is that a methodological approach, based on online platforms for backcasting for the city visioning process, has never been applied in Nigeria before, even though the exclusionary planning approaches used to date have not delivered the desired sustainable city outcomes. Such gaps open up the potential for a methodological approach, such as a participation-oriented e-backcasting approach, which involves generating qualitative information through bridging across interactive online platforms and conventional backcasting. It was hypothesised that such a method would allow for both top-bottom and bottom-up participation that could enhance the opportunity for a successful long-term strategic planning towards the desirable future vision for Abuja. It also entails engaging participants using interactive online platforms like social media, telecommunication networks and emails towards informing the desirable future scenarios and the prioritisation of the most strategic vision.

Studies such as Quist and Vergragt (2006); Quist, (2007); Bagheri and Hjorth (2007); Carlsson-Kanyama et.al, (2008) and Höjer et.al, (2011) applied conventional face-to-face participatory oriented backcasting. Their approach focused on the use of workshops and conferences in convening selected and pre-

determined experts and stakeholder participation, thereby relying on the traditional top-bottom strategy in isolation. The participation-oriented e-backcasting proposes to employ an adapted approach which would target both top-bottom and bottom-up involvement and interaction. The utilisation of an online approach to citizen engagement affords access to a broad range of participants to the point of saturation, as determined by the facilitator, depending on the context (especially time and resources available) as well as purpose and scope of the process.

1.8 Case Study Locations

1.8.1 Case study one: Curitiba-Brazil

Curitiba is located in the emerging industrialised country of Brazil. Curitiba is the seventh largest city in Brazil and is situated 105 kilometres west of the seaport of Paranagua (Soltani and Sharifi, 2012). As indicated in Figures 1.1, it is 400km south of Sao Paulo with a surface of 432 km^2. The city is located on a tableland at 932 metres above sea level and enjoys a tropical maritime temperate climate with swamped regions that adds to its somewhat humid winter (Soltani and Sharifi, 2012). It was established by Portuguese explorers as a gold prospecting centre and then became a gold mining camp in 1530. The earlier settlers gave it the name Curitiba, and it officially became a town in 1812. In 1822 after 30 years of Brazils obtaining its freedom from Portugal, Parana, a state located to the south of Brazil, became separated from Sao Paulo with Curitiba becoming the state capital city of Parana in 1854 (Rabinovitch, 1992).

The city adapted to the political and administrative changes demanded by its new socio-political role (where the national president and mayors were elected every four years, with a maximum tenure of eight years upon re-election) (see Table 4.1 in Chapter 4). The original inhabitants of the town were American Indians, Mestizos, Portuguese and Spanish immigrants till the 1850s when the national port borders of the city were opened and waves of Europeans started arriving in the 1850s. The city currently has a total population of 3.2 million inhabitants and is governed under a metropolitan area comprised of 25 municipalities (Lundqvist, 2007; Macedo, 2013).



Figure 1.1: Geographic location of Curitiba**.**
Source: GIS Lab, Department of Geography and Planning, University of Jos

Its sustainable city processes and outcomes were appraised (see Chapter 4) in order to serve as an initial source of good-practice insights for sustainable city transitioning models from initial envisioning to implementation and monitoring stages. Within a developing country context the city has not only envisioned but also systematically implemented sustainable city strategies over an extended period (of nearly 50 years) and has therefore evolved innovative ways of managing the process towards optimising both the vision and process towards the realisation of the vision.

1.8.2 Case-study two: Abuja, the new FCT of Nigeria

The FCT is located within the central region of Nigeria with a total area of approximately 8000km^2. It is bounded by four states (Kogi, Kaduna, Niger and

Nassarawa) and comprises six area-councils, which are Abuja Municipal, Bwari, Kuje, Gwagwalada, Kwali and Abaji (see Figure 1.2) (Owei, 2007). Abuja is located between latitude 9.07°N and longitude 7.48°E, and at an altitude of 840m above sea level which gives the city a mild climatic condition which is in sharp contrast to the humid tropical climate of Lagos, the former capital city.

As the federal capital, the siting of the city was based on its centrality and ease of access from all parts of Nigeria, healthy climatic conditions, the smallness of its population, convenience of use of available land for future expansion, physical planning opportuneness and the potential it offered for ethnic unity for the country as a whole.

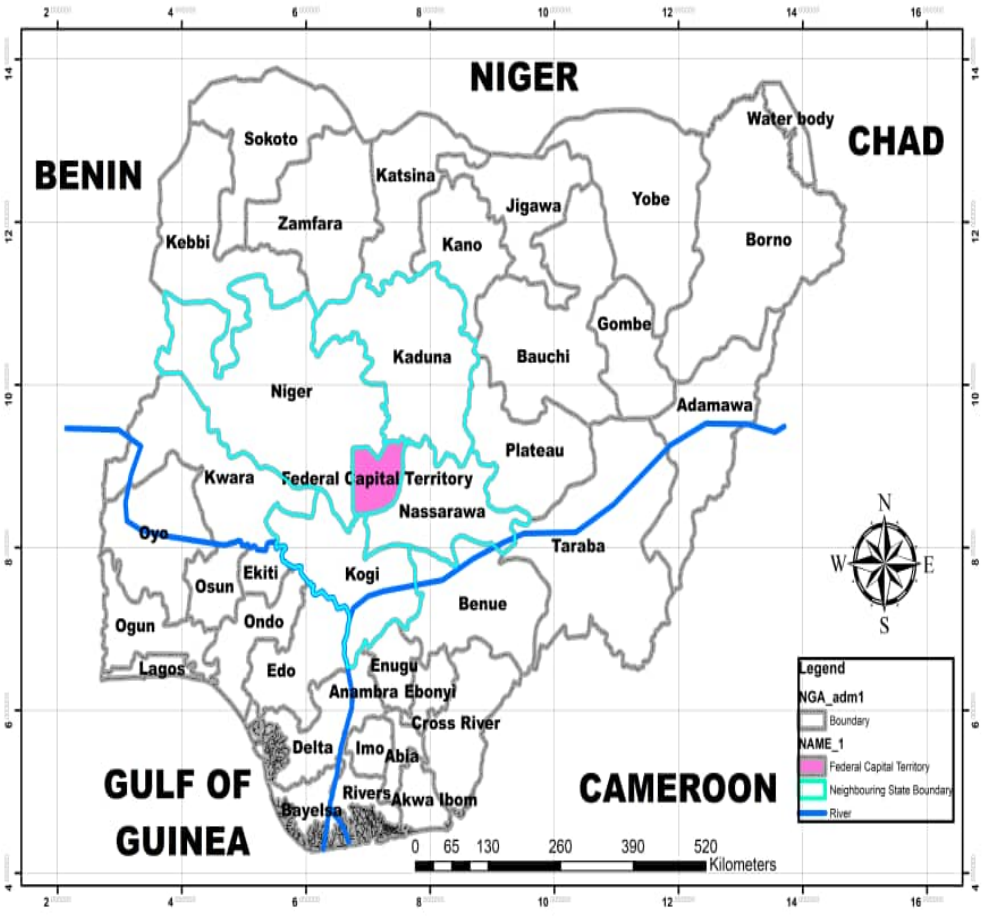


Figure 1.2: Location of Abuja bounded by Kaduna, Kogi, Nasarawa & Niger.
Source: GIS Lab, Department of Geography and Planning, University of Jos

The city is solely administered by the Federal Capital Territory Administration (FCTA) and controlled by a minister who is selected by the president. The Abuja

city structure is organised into local government and municipalities governed by the Minister of the Federal Capital Territory (MFCT). This constitutes a cabinet position filled through appointment by the President of the country) (see details in Section 3.6.1 in Chapter 3 and 4.3 in Chapter 4). Every decision-making process for the city is spearheaded by the minister, who oversees all other ministries, governing bodies and parastatals within the municipality. The FCTA has a number of departments and agencies under their respective administrators. These include the Abuja Environmental Protection Board (AEPB), the Abuja Water Board (AWB), Abuja Geographic Information System (AGIS) (primarily in control of land administration) and the Transportation Secretariat.

The population of Abuja has grown remarkably from 113,000 in 1976. By 1991 census, the city population had grown to 378,671 people and by 2006 census the population was almost 1.4 million people (see Figure 4.10 in Chapter 4) (NPC, 1991, 2006). Currently, the city suffers from on-going pressure on its inadequate infrastructure due to the escalation in population relative to a slow expansion in infrastructure development.

1.9 Novelty and Original Contribution to Knowledge

Since studies on participatory backcasting are rare with regard to urban planning in Nigeria, it is likely that this might be the first academic study to combine online platforms and participatory-oriented backcasting approach. The combination aims at tackling one of the critical shortfalls in planning, which is the need among cities to re-vision their future through an inclusive and collective integration of a variety of actors. Considering its peculiarities and being the first empirical study of its kind, it could lead to subsequent refinement and adoption of the tool or method in addressing sustainable city visioning in Nigeria, and in Africa as well.

The originality of the study lies in the insight derived from the documentation of the extent to which increased participation through the e-backcasting online tool as an empirical process could enhance the potential of inclusive participatory process in urban planning, especially during the envisioning stage. The study is unique in that it can create a strong desire for transformation in the forecasting approach in Nigeria and by extension, in most developing countries. The study provides insight to decision-makers keen for a tool or mechanism to solicit and integrate public thoughts and for leaders who are already using online platforms and wish to know

more about its possibilities and limitations in decision-making processes. The study argues for a more robust and flexible tool as an alternative that can be implemented as a new model in the planning profession, thus facilitating for the transformation of the configuration and practice of administering planning services that may aptly address the planning challenges in Abuja, and other Nigerian cities, in general.

Within the academic and knowledge-creation sphere, the approach constitutes a type of experiential learning which incorporates futures-thinking into practical and strategy in action research and learning. Finally, it serves to motivate other scholars to carry out further research in relevant areas relating to this field of study. The findings of the study would also contribute towards extending studies on imaginative public engagement for sustainable city transitioning. The convergence of action research, e-backcasting (especially online platforms) and futures studies would help to open up new practical and conceptual pathways of inspiration, action, and innovation by diverse stakeholders, who have much to gain from the application of the findings towards facilitating the knowledge and practice of sustainable city transitioning.

They share fundamental similarities, such as the importance of stakeholder centred inquiry, learning through heuristic-reflective cycles of action and experimentation, and the inclusion of diverse ways of knowing towards defining and working through sustainability issues. The foregoing confirms the assumption that ebackcasting can enhance the vision and transitoning process for Abuja city. Because it has become apparent that radically new futures, different from previous ones, need to be pursued, because the business-as-usual logic of city planning is leading humanity to tragedy. There is therefore a need to search for futures that are attractive or at least acceptable and sustainable. More specifically, this study would therefore be useful to the planning profession, the stakeholders/public and the government of Nigeria. Most importantly, it would contribute to the wealth of knowledge and practices for sustainable city development, not only for Abuja-Nigeria, but also for other African cities currently faced with similar transitioning challenges. The above

1.10 Scope and Delimitation of Study

As the Federal Capital Territory of Nigeria, Abuja city serves as a relevant empirical case study for substantiating both dimensions of the hypothesis, as captured under

section 1.6 and 1.7. The city comprises the six area councils which are Bwari, Kuje, Abuja Municipal, Gwagwalada, Abaji and Kwali with a total land expanse of approximately 8,000 km^2 (see Figure 1.2 in Section 1.8.2). The study emphasises the critical challenge of inclusive participation towards envisioning and pursuing sustainable city transitioning across Abuja city development with participants drawn from diverse networks within and beyond Abuja city itself, including Nigerians in the diaspora. A critical review of several other inclusive planning issues (amidst other urbanisation and city growth challenges) was carried out. The study draws insights from Curitiba in Brazil, an example of one of the cities in the world which currently enjoys global recognition for its excellent planning practices, based on pioneering approaches to sustainable city transitioning (see section 1.8.1).

The primary focus of the study was not on how participatory oriented e-backcasting (which is the central focus of the research) could help in answering the shortcomings of urban planning to date (backcasting cannot go beyond the visioning stage of the desirable future). But rather the study endeavours to substantiate attracting the mechanisms of enhancing inclusivity and participation of stakeholders in the visioning process, as well as the potential impact on awareness of participants with interactive online platforms as the primary tool. Given that the study was undertaken within a prototype scale, it did not sample participants towards a representative composition of Nigeria's population. Even though the overall number of participants was considered as a critical evaluation-factor, the priority was more on diversity across the various categories of participation tools in order to allow for substantiation on the inclusivity potential. This facilitated comparisons with the conventional backcasting approach which focuses primarily on face-to-face engagement of professional planners or consultants as experts.

A further issue on delimitation of scope was that the study did not examine the extent to which participatory-oriented e-backcasting could serve a role during the monitoring and pathway correction stages of rolling out an action plan in pursuit of the vision. Instead, the study focused on the use of a combination of both bottom-up and top-bottom approaches to solicit and persuade a diverse range of actors to participate in the visioning process. The combined participation was therefore prioritised above all other potential outcomes.

The study also delimited its scope to prototype the re-envisioning a desirable city future (along the backcasting pathway of 50 years as pointed out by participants) for Abuja but did not engage participants towards evolving a detailed action-plan in pursuit of the vision. This was mainly informed by the core aim of the methodological approach which was not to arrive at a firm 20 or 30 years-vision but instead aimed at broadening the idea of what is achievable in the long-run as the primary contribution to urban planning through the adapted exploratory approach. The primary focus was therefore the need to obtain adaptability findings, while providing new grounds and ideas for improving urban development through essential contribution to academic and practice areas of the discipline. Theories on public participation behaviours, communicative planning, capability and habemas theories were not part of theoretical fields of the study. The study is mainly anchored on backcasting for sustainable city visioning and transitioning as the theoretical field.

The study concludes on findings related to the potential of adaptability of the e-backcasting approach towards addressing the shortcomings of previous and current methods with regard to facilitating a bottom-up and top-bottom participation based approach in city administration. The process involved purposeful recruiting participants based on specific criteria, coupled with insights from their perspectives and experiences which served as recommendations to guide for future follow-up and refinement in subsequent studies. Even though all the interactions were done in English (which limits getting across to those who could not express or write in English), it made it easier for a majority of the participant to interact without hindrance, taking into account the diverse tribes and indigenous languages involved. The online process was therefore hypothesised to hold the potential for enhancing the pursuit of an all-inclusive desirable and sustainable city future goals and vision, not only for Abuja but other Nigerian cities and towns, and thus likely to impact on participants positively, especially through an enhanced sense of owing the vision through finding their own vision within the larger Abuja-vision. In the long run, this would improve the potential of contributing towards greater inclusivity in city governance and management for sustainable city development–a reality which has so far eluded Abuja.

1.11 Definition of Key Terms of the Study

This section make available summary on the applied meaning of key terms underpinning the study.

Backcasting: In contrast to (but also in complementing) forecasting, backcasting is said to challenge the thinking in forecasting and move almost opposite to it by applying the technique of "inventing the future" instead of "adapting the future" (Robinson, 1982). Backcasting is, therefore, a much more promising approach for sustainable city issues; especially given the understanding that today's sustainability challenges are clear examples of undesirable outcomes arising from prior or post long-term visions and aspirations in the past.

Case study strategy: Case study is an excellent example of the qualitative study type with its related data collection methods because it aligns closely with the social scientist interpretive approach commonly applied in the social-science disciplines. It emphasises detailed contextual analysis of a number of events or conditions and their relationships (Farquhar, 2012). The strategy is essential for this study because it has the potential of dealing with multiple sources of data or instruments and also adds more credibility to the research (Yin, 2009). The strategy affords the opportunity to understudy two case studies; Abuja and Curitiba.

e-backcasting: As substantiated in this study for the first time, e-backcasting is hypothesised as a strategic online planning process where participants are engaged through interactive online platforms (such as social media technologies and networks, telecommunication networks and emails) for their contribution towards desirable future scenarios and visions. Through the same online platforms, participants work backward to figure out what is needed as a pathway to the desired future state from the undesirable status quo state. e-backcasting is therefore hypothesized as a potential mechanism for enhancing deliberative public participation oriented interaction based on in the social-media network especially through facilitating inclusive envisioning process among citizens and residents.

e-Governance: This is a new governance approach using a Web 2.0 internet resource. It is comprised of the development and application of several social media platforms, currently gaining momentum towards the delivery of public-sector services. Millard (2008) notes that, this has contributed towards insights for future

models for e-governance. Interest in e-governance applications of Web 2.0 has increased due to the need for efficiency in the provision of government services, reduction in paperwork, minimising turn-around times, and advertisements by the public sector departments and general innovation interest in governance (Shim and Eom, 2008)

Heuristic-reflective: Educating participants using a method of teaching that encourages learners to discover solutions for themselves (Poulter, 2005; Gaziulusoy and Boyle, 2013).This procedures as applied in the action research procedure of this study is aimed at helping participants to discover procedure to getting solutions for themselves through the e-backcasting participatory approach.

Modernist-theory in urban planning: Modernism in urban planning is characterised by the pursuit of streamlining cities, their functionality, order, and zoning. The highly centralised approach used to plan modernist cities is the rational-comprehensive planning tradition with an emphasis on grand plans and programmes developed by experts who prioritise rational decision-making processes while marginalising local values and input (Allmendinger, 2017).

Normative approach: Boella, van der Torre and Verhage (2006) define ‘normative' as ‘conforming to or based on norms,' as in normative behaviour or normative judgements. ‘Norm' means ‘a principle of right action binding upon the members of a group to monitor and regulate proper and acceptable behaviour.' Backcasting research is a critical component of a normative approach because it describes essential practices and pays attention to how communicative practices are related to better social outcomes through consistent and constant evaluation.

Participation-oriented backcasting (PBC): This is one of the four types of backcasting approaches highlighted or applied in different studies. PBC is a creative workshop tool or technique in which the methodology is secondary to the anticipated benefits of meaningful participation. Participation thus constitutes the primary goal and is thus prioritised above other potential outcomes of the visioning process. Depending on the scale and forms of stakeholder participation, participatory backcasting approaches have transformed into a range of diverse methodologies now in practice.

Sustainable City Development: The original definition of sustainable development is usually considered to be: "Development that meets the needs of

the present without compromising the ability of future generations to meet their own needs." Bruntland Report, “Our Common Future” (WCED, 1987) referred to as the Brundtland report) (Bärlund, 2005). Sustainable city development is development with positive change that does not weaken the environmental or social systems on which we depend. It requires a conventional approach to planning and policy making that involves public participation. Its success depends on the widespread understanding of the critical relationship between people and their environment and the will to make necessary changes. In essence, sustainable city development is about five fundamental principles: quality of life; justice and equity; collective participation; care for our environment and respect for environmental control- recognising there are 'environmental limits'; and thought for the future within a precautionary approach (UNESCO, 1993)

Strategies for sustainable development: Strategies are the tools that guide the direction of policies and actions in any socio-economic or political system. Different views may result in different values that inform responsive strategies (even if such strategies come under criticism). It is still possible that advocates of varying value systems may reach an agreement on policy in spite of their different views (Lindblom, 1978). Unlike the prevailing ‘fixed-goal' approaches of strategy making inherent in the forecasting approach (which primarily focuses on options for either supply-side or demand-side management) with backcasting, sustainability strategies have evolved towards emphasizes on the social-learning process and meaningful participation of all stakeholders within the process.

Social learning: This entails the involvement or participation of stakeholders in backcasting towards desired future vision and plans for implementation in the midst of complex interactions, even though it may be unclear how to reach the desired future. It is characterised as a social learning process as long as the long term perspective or standpoint impact on the decision-making process is minimized while also making it possible for actors to let go of the present way of achieving and pursuing their critical needs.

Top-down and bottom-up approach to participation: There are many approaches to participation in any community growth process (such as the bottom-up/top-bottom, expert/professional, many/central; and struggle/practical and do-it-yourself/empowerment approaches. However, Conyers, (1986) classified community development into three types, which are "top-bottom", "bottom-up" and

"partnership". In the top-bottom approach, the key action of change is originated by the government or expert. In fact, in this approach the whole thing is accomplished by the government, while the entire public remains as inactive recipients. The top-bottom approach gives emphasis to central planning and the direction of execution. Meanwhile, the bottom-up approach is initiated and achieved by the public for the public. Government and facility sponsors act as supporters, coordinators and advisors (Cohen and Uphoff, 1977; Nikkhah and Redzuan, 2009). Partnership is simply the combination of the two participatory approaches and their attributes. For this study, the mix of both participatory approaches into e-backcasting is focused on obtaining the desired inclusivity in the re-envisioning process. This research exist in a rising body of knowledge that explores the integral affinity of top-bottom and bottom-up in planning and public policy from related key studies such as those by Holcombe, (2013) and Hammami, (2012).

Visions and envisioning: Conceptualisation and consolidation of a vision and a plan for a city's development is the essential first step for creating and pursuing new pathways towards the required transformation. Visions are usually mental dreams, thoughts, passions, and inspirations that shape and guide the direction of change towards the desired future, as inspired by the diverse actions of a multiplicity of different actors (Meadows, 2012). The focus of the visioning process is to create a fertile environment for developing alternative ideas that would improve on the undesired status quo and its extended business-as-usual trajectory.

1.12 Structure and Outline of the Dissertation

The study is structured into six chapters as illustrated in Figure 1.3 (the visual map of the structure). This section presents an overview of the chapters as follows:

Chapter 1 presents the background, the research context, and motivation of the study. The key sections include envisioning sustainable city transitions and the challenges now inhibiting inclusive participation in sustainable transformation with a specific focus on Abuja. The chapter also introduces the critical shortcomings of the master plan as a way of contextualising the weakness of city plans and visioning approach for Abuja, thus providing a stable base for the study aim, objectives, research questions, rationalisation of the research, as well as the working hypothesis, the scope and study structure of the study. The chapter also

presents the conceptual framework for the study with critical assumptions as guided by the literature reviewed which then guides the data inquiry and analytical method, while establishing the basis for the envisaged contribution to knowledge.

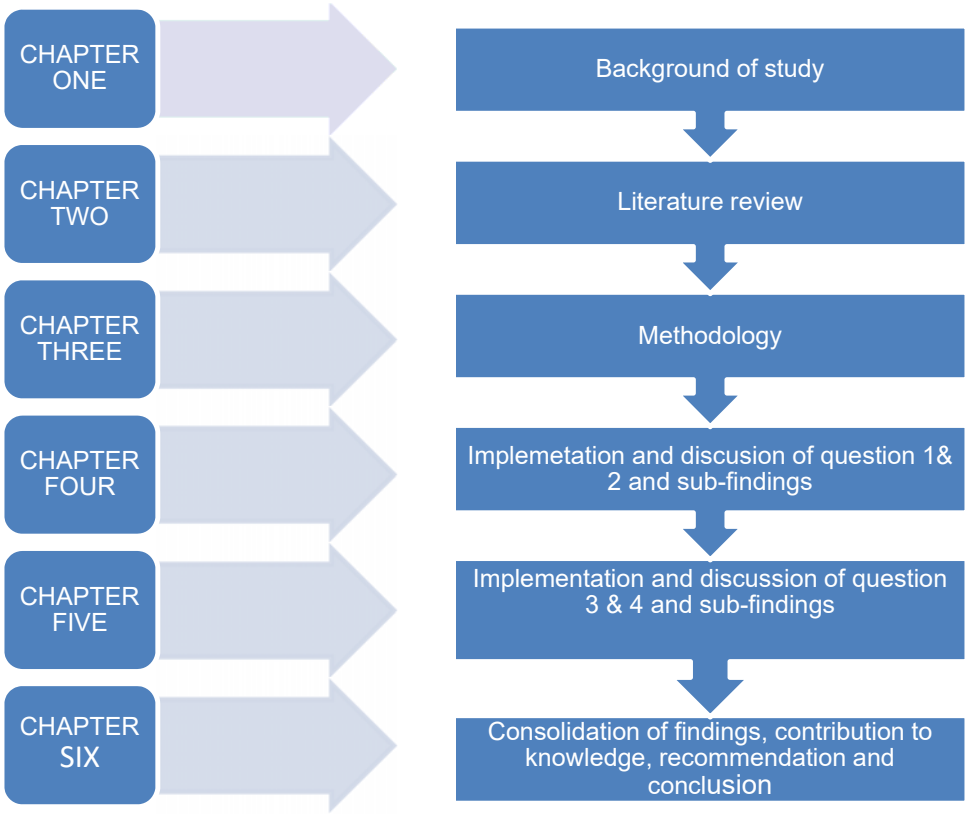


Figure 1.3. Structure and outline of the thesis stages

Chapter 2 focuses on prioritisation and appraisal of readings undertaken to establish the present state of knowledge as well as the related knowledge gaps emerging from the appraisals. More specifically, the appraisal focuses on governance in relation to sustainable city transitioning and is guided by the aim of identifying the factors which inhibit the attainment of sustainable urban development goals.This chapter also presents appraisals on sustainable city development and inclusive participation as a guiding principle and solution to the current challenges of rapid global urbanisation. A critical review of the limitations of the forecasting approach is also presented, based on the lapses inherent in the application of a linear comprehensive urban master plan in city planning as well as the examination of e-government platform approaches, thus motivating for the adaptation of e-backcasting as a better approach. The chapter further explores the sustainability challenges facing Abuja city visions and related impacts on the

municipal development system as part of understanding the Nigerian case. This is followed by the consolidation of a theoretical position for the study through the adoption of a case study, action research, e-governance and participatory backcasting in order to conceptualise the ‘theoretical lens' to guide the research process.

Chapter 3 presents the overall research design and the methods/tools employed in the study including how the social-media tools were applied in re-envisioning based on online platforms across four iteration stages for each online/social-media tool. The critical components of the chapter include the recapture of the study aim and objective, data requirements and collection tools, sources of data and data analysis tools, study location and study process. The chapter concludes with overview observation on validity, reliability, ethical research considerations and data analysis.

Chapter 4 addresses the first and second sub-questions. To address the first sub-question, the principles or criteria of sustainability, backcasting and the inclusive participation approach towards sustainable city visions, were appraised guided by the selected city case study; Curitiba in Brazil. The data for the question were presented in two major parts: ‘the city vision’ and ‘the outcomes of the participatory and inclusive approach to the vision within a sustainable and backcasting context. This was followed by appraisal of the applicability of the lessons learnt from the exclusionary/inclusionary approaches of these cities towards achieving a sustainable city vision for Abuja.

In answering the second sub-question, data were collected and analysed towards deriving an understanding of the nature and extent of visioning, the sustainable city and the participatory approach to the historical development of Abuja. The secondary data collection and analysis was guided by the first research sub-question with its related objective. The chapter provides an overview of data obtained mainly from secondary sources while assessing the level of participation and inclusiveness in previous implementation approaches of the Abuja city visions and plans to date. Firstly, empirical data for the chapter were organised using thematic analysis in order to carry out the management, querying and comparing of the collected data. The sub-findings for this chapter were presented in two major parts which covers the period from 1974 to 1989 (characterised in this study as the pre-sustainability era) and 1990 to 2017 (characterised as the sustainability era).

The emphasis is mainly on how the actors involved, and related institutions, structured the visions and plans for Abuja in order to deliver on the targeted or outcomes for the city. It also sought to analyse critically how these approaches have evolved before and after 1989 with regards to sustainability, participation, and inclusiveness. The section concludes by critiquing the implementation constraints with regard to participation and inclusivity. The insight are subsequently applied towards analysing the current structure within which plans for Abuja and its development exist to date, within a sustainable and backcasting context. The Chapter then concludes with the key sub-findings of the literature appraisal towards motivating for the desired change to bring about the lasting transformation required for an inclusive process towards envisioning and pursuing a sustainable future vision for Abuja. It also presents the related sub-findings in response to the associated research objectives one and two as well as sub-questions one and two.

Chapter 5 deals with sub-questions three and four. In addressing sub-question three, it presents findings on the extent of participation and inclusiveness based on action research which entailed the conceptualisation and implementation of prototype-scale e-backcasting through social-media tools as a re-envisioning tool for Abuja. First and foremost, the chapter utilises findings obtained from the analysis of data derived from participation towards deliberating on the city's current status quo and changes needed through the use of SWOT techniques, scenario planning, and e-backcasting techniques (see Appendix B, C and D). Related findings and discussions are structured in relation to the extent of participation and inclusiveness across the various online tools/media.

For sub-question four, the analysis was followed by the evaluation of participants' awareness and understanding of the subject of sustainable cities as well as their preparedness for implementation of a prototyped city vision for Abuja. Initially, the sub-findings for sub-question four are presented along with perceptions of participants before and after participation. This was based on results and conclusions emerging from the assessment of the level of impact and the significance of the participatory methods towards sensitising change in knowledge or empowering participants to act towards informing the vision for Abuja's transformation to a sustainable city.

Chapter 6 presents a consolidation of the results, followed by overall conclusion in relation to the overall research question and the re-working of the hypothesis.

The re-worked hypothesis was expected to align with the goal of qualitative study towards generating (rather than testing) a hypothesis guided by the emergent insights. Initially, the chapter presents an overview of the study, sub-questions and related sub-findings. This is followed by a statement on how the research has addressed its goals, originality of the findings with regard to the adaptability potential of e-backcasting and the significance of the application of the methodological approach toward influencing inclusivity and participation. It further argues on the significance of the adaptability of backcasting to e-backcasting which would be more appropriate as a management tool for Abuja city visioning for sustainable city transitioning. The chapter then concludes with an overview on the problems encountered during the investigation, as well as the limitations and recommendations for further research that would subsequently enhance the contribution of the study.

Outline, order and overview of the appendices: The Appendices are structured and ordered in line with the study process and the content flow of the chapters. This outline provides a brief overview across all the appendices.

Appendix A, links to Chapter 4 and focuses on the status quo state of the two case studies of Abuja and Curitiba. The key content of the Appendix data relates to city visions and their implementation principles/criteria of inclusive participation within a sustainable or backcasting context. These data sets where applied in Chapter 4 in order to address sub-question 1 and objectives. The findings were subsequently applied to guide the exploration/ conceptualisation of inclusive pathway towards a sustainable city vision for Abuja from international experience perspective.

Appendix B, presents a sample of some of the selected open-ended questions used in engaging and collecting data for the e-backcasting prototyping process presented or analysed in Chapters 5. The questions are categorised into four different parts which are the key issues of the e-backcasting prototyping process: the status-quo of Abuja (a way of re-validating the findings in Chapter 4), participants' profile and determination of the extent of inclusivity, the scenario and vision creation stages and finally, the assessment of impact of participation experience among participants.

Appendix C, presents the process by which participants were identified, contacted and recruited for the prototyping process as well as the schedule of activities and

extent of participation for the four iterations 1 to 4. Data for this appendix is closely related to the analyses and sub-findings to Chapter 5.

Appendix D, presents the step by step e-backcasting prototyping process as implemented through the application of Web 2.0 tools in order to assess the adaptability of backcasting to e-backcasting as a strategic planning tool. The appendix presents the primary data, the results and findings from the prototyping process based on data collection mechanisms that facilitated open-minded perspectives among the participants. The findings of the study are considered on Abuja and discussed based on participants' perception towards the current city challenges and suggested strategies needed to effect the change required to move the city to a sustainable city future. All the online schedule and iterations were executed and related data-analyses under the following stages; platform issues, participation issues, timing issues and re-visioning issues respectively. The process also showed the stages of modification of issues across the prototype iteration levels using social media tools such as email, Facebook, WhatsApp and blog. Through the prototyping process as summarised in Appendix D, the study was able to assess the potentials of the approach towards resolving critical needs for Abuja (such as urban visions, plans and administrative challenges, which the masters plan or forecasting has been incapable of doing in the face of uncertainty. Data on this appendix is primarily linked to sub-question 3 and 4 and objective 3 and 4 as substantiated in Chapter 5.

Appendix E, presents the ethics clearance certificate from University of the Witwatersrand in line with the ethical concerns listed in Section 3.8 in Chapter 3.

Appendixes F and G respectively presents participants' information sheet, followed by the moderation/guideline for participants involved in the e-backcasting prototype process.

2 CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter appraises more specifically a sample of existing research work within the fields of governance and sustainable city development, the use of a master-plan model, inclusive participation in decision-making, and backcasting in urban planning within the emerging field of futures studies. More precisely, the literature reviewed focused on readings and prioritised for insight towards the objective of the study. The review is ordered into five key sections which constitute the core theoretical fields underpinning the study. The fields are e-governance, top-bottom modernist theory, and participatory oriented backcasting. This process sets the background that in turn, unlocks the substantive body of prevailing understanding/knowledge in order to guide the envisioning and re-envisioning processes for cities, particularly in Nigeria. Subsequently, the chapter brings clarity to the relationship between visions and inclusive participation based on the adaptation of participatory oriented e-backcasting. The chapter then compares the application of participatory-oriented backcasting versus forecasting approaches as inherent in the historical use of the master plan for Abuja's city development.

2.2 Governance and Sustainable City Development: A Global Perspective

Governance refers to the manner in which a social entity (whether at the scale of a company, a city or a country) is run or managed. It refers to the way one gets to act, through what types of interactions (negotiation, concession, self-regulation or imposing choice) and the degree to which actors reference their action to a collective direction and orientation (Okeke, 2010). It therefore entails the agreed-upon mechanisms and processes of steering an organisation or social group and includes the systems and methods used, how groups are to be structured, how to share information, how to make related decisions, who to include and how and to whom authority is delegated (Robertson, 2014).

Governance is a critical factor towards the vision and process of sustainable city transitioning. Kemp et.al, (2005) notes that, concerns on governance and sustainable development emerged in the late 1980s, and both share similar characteristics as well as overlapping challenges. As with the sustainable city development, governance became a highly contested issue and by the mid-1990s, governance gradually became an issue of professional dialogue because its

meanings and implications carry several promises and pressure on those who exercise it.

On the other hand, sustainable development as a concept rests on three moral imperatives which are: satisfying human needs, ensuring social equity and respecting environmental limits (Hart, 2010; Holden et.al, 2017). This reflects on WECD's (1987) central message which seeks to balance social, environmental and economic targets. The transition to sustainable cities also calls for new governance engagements, as means of urban governance have changed over the past century following a paradigm shift in the economy and growth of cities both at the national and global level (Book et.al. 2010; Baycan et.al, 2012). In line with this, cities are recognised as leading players in the shift to more sustainable ways and means of creation and intake as articulated in the Sustainable Development Goals of 2016 (Swilling and Hajer, 2017; Klopp and Petretta, 2017). These calls for new governance approach which facilitates collective action by diverse actors within the public sector and community stakeholders, working together to achieve well-being along with agreed target, and guided by common goals.

Van Zeijl-Rozema, et.al, (2008) has conceptualised two general methodological approaches to governance which are the traditional hierarchical model (mainly characterised by as a direct command and control system) and the non-linear model (where actors share information, participate in planning and are empowered and motivated to decide, while ensuring that an efficient structure exists). Salat, (2016) argues that integrated planning is one of the main agents that can be used in governance to shape city's configuration and spatial flow of urban activities in ways that optimise the potential of sustaining its infrastructural investments as well as land-use planning decisions. While keeping in mind that even though cities require infrastructures, housing and services, it will all change with time as its population growth statistics change. Van Zeijl-Rozema et al, (2008) are also of the opinion that transformation towards sustainability requires good governance and strong leadership that encourages bottom-up participation in ways that can advocate change and provide support to traditional government institutions. Good in the sense that such government is a prerequisite for, and probably also a product of, steps towards sustainability. As such, teamwork becomes the core of sustainability initiatives, in a manner which ensures that the vision and goals come from the diverse range of actors and in turn encourage the entire group to embrace

transformative change. Okeke, (2010) and Kelly, (2010) also emphasise the need to use governance to guide the progression towards sustainable city development because of its normative nature and collective action required. Fukuyama, (2013) states that when a government carries out its duties in a concise result-oriented way that respects the will of the people, it promotes the people's capabilities through the goals of achieving self-reliance, sustainable development, and social justice. When coupled with the effective and efficient ways of working to achieve these goals, such a government can be viewed to be practicing good governance.

Good governance is now recognized all over the world and in a manner like never before especially in Africa, as a necessary condition for, urban development, economic growth, and poverty reduction and environmental quality (Otegbulu, 2013; Omar, 2009). According to Partnership for Good Governance (PGG) (2013), 'Good governance' is the competent management of a country's resources and affairs in a manner that is open, transparent, accountable, equitable and responsive to people's needs. Good governance is an essential precondition for sustainable development and poor governance stifles and impedes development. In countries where there is corruption, poor control of public funds, lack of accountability, abuses of human rights and excessive military influence, development inevitably suffers.

Otegbulu, (2013) suggested six dimensions of measurement, that qualifies good governance, to be when a government is identified to possess the following; accountability to its citizens, lack of political violence and terrorism, government effectiveness, lack of regulatory burden, property rights and rule of law and control of corruption. Similarly, United Nations Development Programme (UNDP, (1997) states that good governance is the process of decision making and the process by which decisions are implemented and it has eight major characteristics. It is participatory, consensus oriented, accountable, transparent, responsive, effective and efficient, equitable and inclusive, and follows the rule of law as shown in Figure 2.1.

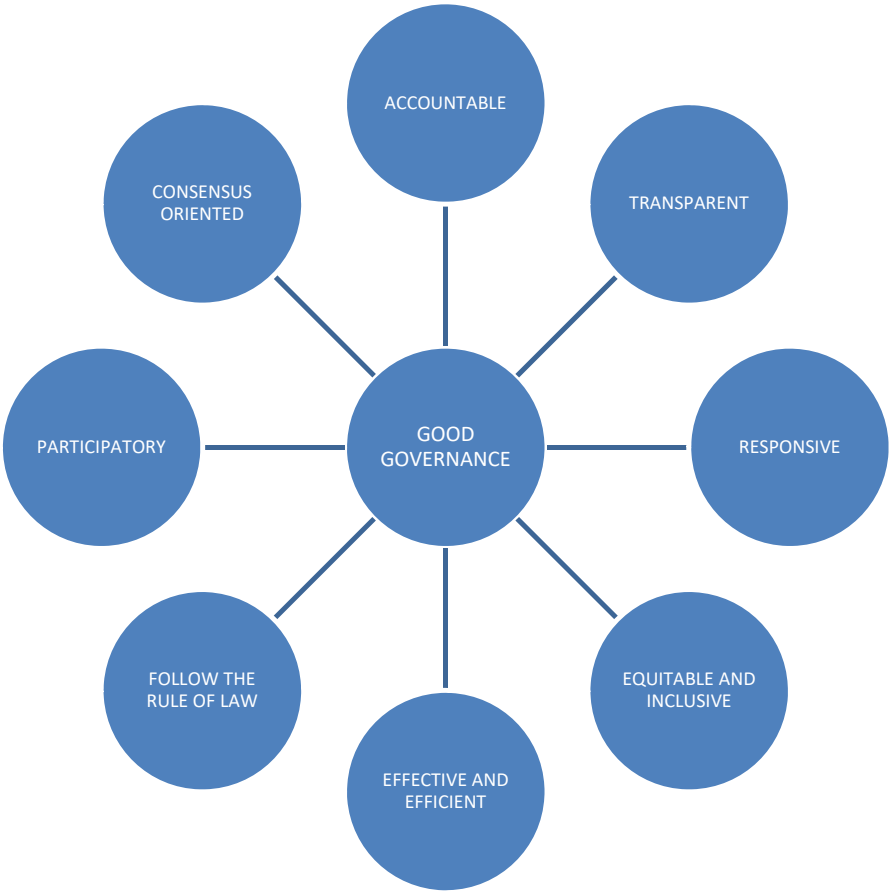


Figure 2.1 Characteristics of good governance
Source: owsposters.org

On the other hand, Otegbulu (2013) further opines that African Government institutions are weak and faced with so many crises (deficiency in urban governance, crime, slummy development, unemployment security challenges etc.). These crisis are mainly due to structural and functional disconnect or lack of convergence between formal institutions that are obtained from outside and informal institutions that are rooted in African history, tradition and culture.These crises makes up the general character of governance of civil society. This situation is not different in Nigeria. Currently, there is a wide gap between the desires of the public and government policies with respect to urban governance.

Nevertheless, over the last 20 years, democracy and economic changes have transformed many African nations. Such transformation were through their continuous interest in good governance for sustainable urban development in spite of the accelerated population growth, rural-to-urban migration, slummy and

blighted settlement, environmental degradation, global economic crisis, problem of inequality and inadequate social development. As a result of insufficient political will, urban governance deficiency continues to affect most African cities just like the case of Abuja, the Federal Capital Territory of Nigeria. Good Urban governance remains lagging, despite the enormity of obstacles and there is a display of resilience in adopting survival strategies in transforming opportunities into positive actions.

Freire, (2007) further notes that for a city to attain good governance that would culminate into sustainability, it has to focus on transforming its methodological approach towards visioning, planning and decision-making processes. Such a transformation would provide a stronger platform for cities to improve on their procedural transparency while also enhancing inclusivity and public participation (of which this study tried to address in Chapter 5). Freire, (2007) suggests that improving governance at the city level allows cities to translate global opportunity into local value for their citizens with subsequent enhancement of well-being as an essential outcome for the city. Leadership is most effective when it inspires and facilitates the participation of people in their communities, thus instilling an ethos of ongoing participatory and transformative change which addresses the needs of all residents and sectors.

However, making leadership effective in this manner has proven to be difficult, primarily because many of the parties may have conflicting interest and priorities. The approach of good governance through quality leadership and participation as described by Freire, (2007) and Fukuyama, (2013) from all indication is lacking in the status quo case of Abuja city governance as enumerated in Chapter 4 section 4.3. In particular, most of the commonly used approaches are inadequate for the highly complex and uncertain process of the city visioning and planning processes. As such, there is the critical need for city planners and administrators to pursue innovation or the adaptation of methodological approaches that iteratively contribute to the goals of sustainable urban development.

2.2.1 Governance and Sustainable City Development: The Nigerian Perspective

Nigeria as a country is currently plagued by deficiency in governance while also suffering from religious and ethnic factions, community cohesion crises and inconsistencies in visionary leadership resulting in inadequate sustainable city

development. As a federated state, Nigeria performs poorly when compared to other African countries and also as a nation (Awuah, 2017). Since independence, the country has stumbled through various development-visions guided by different leaders, both during and post-military rule (including the rolling plans of the 60s and 80s). These developmental efforts were mainly underlined by the government vision of raising the country's profile from third world status to one of the twenty largest and most sustainable economies of the world (Federal government of Nigeria, 2011). The programmes and policies ranged from the Land Use Act of 1978, Low-Cost Housing Project (1972-1979, and 1975-1983), and Site-and-Services Programme (1984 –1988) and the 1991 National Housing Policy amongst others. Yet the level of underdevelopment of Nigeria's cities in the last 55 years (after the departure of the colonial rule) reinforces the view that a nation's destiny is largely influenced by the quality and substance of its leaders in various spheres (Salawu, 2007).

Despite the transition from military rule to democracy in 1999, (and considering its post-1999 political governance and leadership) the mistakes of the past are still being repeated. This is mainly because there is still no conscious or genuine interest or political will to propel sound development on the part of the leaders, thus creating a void in both the relational as well as the process components of leadership in the country. There is a commonly held consensus that for Nigeria, political independence has not translated into development or better quality of lives for the majority of the citizenry and there is an urgent need to remedy the situation (Okeke, 2010).

Public participation in government programmes and decision-making processes in the country has been extremely weak, mainly because citizens lack confidence in their leaders and by extension, the political system in general (Omololu, 2007). As a federation of states, Nigeria performs poorly, relative to other African countries and therefore qualifies for focused investigation on its shortfalls with regard to good governance practices. Roy and Tisdell (1998) emphasis that right governance for the pursuit of sustainable city transitioning depends on appropriate institutional structures.

Likewise, Eliagwu, (2009) and Otegbulu (2013) also note that the level of good governance in any socio-political system is a function of good leadership as well as proper management. Within the Nigerian governance system and processes,

the role of good leadership and management is yet to be realised, primarily because weak institutional structures make the rule of law and self-regulation initiatives remain at the level of ideas rather than being a systematically pursued reality. In countries overwhelmed by corruption, weak accountability in the expenditure of public funds, and excessive military influence, development vision and goals inevitably suffer (Eneh, 2011). Good governance is, therefore, an essential precondition for sustainable city development in order to mitigate poor management which stifles and impedes such progress. In spite of all the setbacks the country has endured as a result of its dictatorial leaders in the past, and mainly from the hands of a succession of authoritarian military regimes, the people still hope for a better future with improved well-being and high levels of resilience (Omilusi, 2013).

Numerous studies have argued that the primary reason for Nigeria's socio-economic stagnation and underdevelopment of most of its cities are the observable fact of corruption, poor implementation of vision-guided programmes, and neglect of the application of the rule of law. The studies include Eneh, (2011), Ogbeidi, (2012), Omilusi, (2013), Nzekwe, Izueke, and Okeke, (2014) and Kwasi, (2017), among others. This deficiency in governance has led to a critical shortfall in legitimacy and widespread loss of confidence in the state institutions as well as their processes. The administrative arm of governance needs to become sensitive to the citizens' needs and be committed to developing visions and programmes in a manner that entails inclusive participation. Ogbeidi, (2012) suggests that there is a need to put in place mechanisms for a continuous check on perpetually failed visions, lapses in policy implementation, and the escalating backlogs in urban infrastructure and services for all. The studies further noted that the Nigerian governance style should be such that it could re-inculcate the spirit of patriotism in the minds of its citizens so that they will be ready and willing to stand with the government in pursuit of collaboratively development initiatives. Obo and Adejumo (2014) argue that the shortcomings of the Nigerian system and its challenges are not solely the fault of the leaders, but also that of its citizens, mainly through nonchalant responses and behaviour. Obo and Adejumo (2014) note that until Nigerians view themselves as one and not as belonging to one section of the country (as commonly portrayed at present), the need to develop Nigerian cities cannot be initiated or sustained.

Erhagbe, (2012) noted that the most crucial missing link in Nigeria's drive towards the attainment of a sustainable city vision is a responsive governance approach and style to its city visioning, planning, and subsequent implementation. As such, there is the need for some form of re-orientation primarily on the method of governance, regarding values, norms, and acceptable conduct. This study hypothesised that the first step towards the required radical transformation towards a sustainable and inclusive city would be to carefully identify the causes of the challenges facing the pursuit of its city plans and visions based on proven methods. It further focuses on understanding methodological approaches under the non-linear model and especially with regards to the facilitation of participation in planning and empowering decision-making through both bottom-up and top-bottom interaction. That explains why participatory e-backcasting was proposed as one method that can salvage the undesirable status quo and the business-as-usual trajectory of Nigerian cities. It reverses the usual approach to governance and planning (backcasting rather than forecasting) and promotes direct participation in the definition of objectives and strategies along key elements of participatory backcasting which includes:

- Stakeholder involvement in the governance and planning process, which increased legitimacy and accountability for the decision and the related action plans
- Participatory generation of desirable future vision where the desired vision acts as activator and motivator to both city administrators and citizens
- Stakeholder learning through interaction during vision development and future-present pathway definition

As the Federal Capital City, Abuja was meant to showcase Nigeria to the world as an outstanding national capital in contrast to the former capital of Lagos. However, over time since its establishment, several issues surrounding its governance and management have hindered the attainment of its envisioned glory. The challenges in question range from the alteration and non-conformance to the original master plan, the way and manner in which development policies are currently implemented, coupled with the dragging pace of development and inconsistencies in good governance. As part of the status-quo appraisal for e-backcasting, the study evaluated the lapses in management as well as challenges in administering sustainable urban development principles as presented in Chapter 4. Related data

was captured through historical exploration (based on secondary data archives) and direct observations were also applied. Empirical precedents in sustainable city transitioning were also analysed in Chapter 5 in relation to the extent of participation and inclusivity and impact of participation on the sense of ownership of the selected vision among participants.

2.3 Methodological Application of Linear Comprehensive Master Plan Model in Urban Planning: A Global and Nigerian (Abuja) Perspective

The rational comprehensive master plan model dominated the theory and practice of urban planning and other related disciplines up to the 1950s. The approach was underpinned by a psuedo-scientific logic of cause-effect relationship which guided the expectation of an orderly pursuit of solutions from problem identification through to the conceptualisation of the solution within a linear pattern (Alexander, 2007; Dorstewitz, 2008; Boyer, 2017; Diller, Hoffmann and Oberding, 2018). The model evolved out of the desire for a rational-expert approach with the aim of systematising the production of developmental policy and ordering the spatial structure of a modern city. It subsequently evolved into a central tool in the development of the modern urban planning profession and was applied successfully in transportation planning, particularly in the United States (most notably in the Chicago transportation system) (Black, 1990; Black, 2018).

However, by the mid-1950s spatial urban planning practice had gradually begun to undergo fundamental changes. Initially, it was criticised primarily for focusing on plan-making with minimal regard to implementation and action strategies, in reaction and response to these contestations, the new era of postmodernist thoughts in planning started to emerge between 1960s and the 1990s, as characterised by alternative approaches, such as strategic planning, incremental planning, advocacy planning, e-planning, systematic planning and collaborative planning (Watson, 2009).

The comprehensive master plans of the 1960's constitute one of the responses to these shortfalls. They paved the way for town planners to focus more on creative planning and the making of long-term comprehensive plans, but still linear-based. The plans by design are essentially to continuously monitor development and progress of a community or region. The approach evolved into the most widely

accepted and commonly used physical planning tool in urban planning processes worldwide. Through this approach, detailed plans comprising comprehensive urban planning schemes with a positivist and expert-driven approach were prepared. The master plans were also based on the prioritisation of assumed and privileged expert or pseudo-scientific knowledge over local values and input with emphasis on grand projects and programmes coupled with highly centralised, top-bottom and linear approaches to implementation processes (Taylor, 1998).

Bracken, (2014) further argues that the rational linear approach of a comprehensive master plan model gradually fell out of use due to its nonconformity from the preferred method which emphasises community values and participation in decision-making. The planning process (which includes the comprehensive linear and rational approach) showed the limited transformation of public decision-making, especially with the involvement of local communities or stakeholders. The purely rational goals or visions remained unattainable because socio-economic needs or challenges became enormous and proved to be beyond the competencies of planners in isolation of contributions from other city actors. Bracken, (2014) adds that planning naively aspires to ensuring the future, yet that future is inherently unpredictable primarily due to the complexities and uncertainties linked to the economic, environmental and social dynamics of cities.

Consequently, in the long-run, planners have not yet been able to bring about a consistent and comprehensive long-term change as initially aspired to. In support of the above argument, Farvacque and McAuslan (1992) also critique the rational, holistic approach, for its tendency to be a costly and prolonged exercise with ultimately, minimal impact, especially because no matter how logical the plans are, planners cannot predict nor foresee abrupt changes and new expectations that arise between decision-making and implementation, and as such, they cannot guarantee the attainment of the desired outcome based on adherence to their plans. Also, the decision-making model of master planning tends to downplay related fields of expertise of which the planner has a limited understanding, but that are now proving to be crucial for sustainable city outcomes. This is coupled with the fact that the approach also fell short in its capacity for inclusiveness and participation in city visioning, planning and implementation. In spite of its falling out of favour, the linear or comprehensive master plan is still being used, especially in developing country cities (Myers, 2011). The various elements of the approach still

have a firm grip on planning practices in Africa, in spite of on-going efforts by planning scholars towards evolving alternative paradigms and practices for urban planning.

The continued use of the master-plan model has mainly persisted because the highly conservative planning institutions and practices continue to promote them through the training of future planners (Watson, 2009). In Nigeria, for example, the approach was imported through colonialism and has continued to be utilised by planners and city administrators as the primary approach to managing urban development. The colonial era was marked by dense fragmented implementation of guidelines, using special committees created for the specific purpose, as and when required. Planning was generally carried out as a part of a government organisation which lacked technically qualified staff and officials were over saddled so much responsibilities by those in powers, which led to the advent of Planning Authorities (PA) and the establishment of verdicts that made way for schemes and proceedings. These later initiated enquiries about decrees for re-design, upgrading and the expansion of Lagos (cap. 103, No. 45 of 1928). The re-development of Lagos led to focusing on major development projects in the city, to the detriment of other urban centres in the nation. The developments led to overcrowding, sprawling and hectic traffic congestion of Lagos, which led to the creation of Abuja as Nigeria's new capital city to decongest Lagos. Abuja was created through the implementation of a master-plan but the execution phases nosedived so could not bring about the anticipated controlled urban growth and administration envisaged (Mabogunji, 2001; Oyesiku, 2004; Jiriko, 2008; Wapwera, and Egbu, 2013).

Ubani et.al, (2014) and Essein, Amodu and Yacim (2009) argue that master plans have become inappropriate as a spatial planning strategy for Nigerian cities because they did not originate within the context of vibrant and rapidly changing environments such as those experienced in Nigerian cities, such as Abuja. This argument primarily supports the view that the rapid rate of urbanisation faced by Nigerian towns constitutes a significant challenge while conventional urban planning practices and governance style further complicates the problems, rather than resolving them. In particular, the master plan approach cannot meaningfully engage public participation and community consultation processes (which are key imperatives in the decision-making processes for a contemporary city).

In this regard, Ubani et.al, (2014) and Essein et.al, (2009) highlight the following as the key shortfalls of the approach;

- It favours a democratic political system where the terms of office are short, and eligibility is by election. Such a model is primarily geared towards promoting short-term projects which can enhance the chances of their implementers being re-elected
- Public consultation, which is paramount in the public-sector decision-making process, is not meaningfully factored into the process
- The model places enormous power and trust on the planner who is believed to be an expert, especially in terms of the knowledge required to steer urban development and solve resistant problems
- Rational and comprehensive master planning needs a lot of time (particularly for infrastructural development to be completed) when more often than not, such time is limited
- No matter how logical the plans are, planners cannot predict abrupt changes and new expectations which arise between decision-making and subsequent implementation period and process
- The decision on the allocation and reallocation of scarce resources are primarily politically-driven, and thus actively contributes to the disparity between expectations, based on the plans versus outcomes arising from the implementation process without the systematic inclusion of citizens

These shortfalls closely echo the critical challenges characterising the status quo for Abuja today and are thus calling for an alternative approach. Healey (2006) posits that most planning thought and practice in the past twenty-five years has long moved beyond this spatial-focused planning approach. As planners now lay emphasis on city development that pays attention to a broader range of urban issues beyond concerns merely with building forms and urban spatial structure. The study further argues that it is now widely understood that the development of cities in socio-economic and environmental terms, cannot be planned solely based on government priorities. This is because government preferences are viewed in a linear approach, from intention to design, to implementation in a manner that results in exclusionary outcomes, as has been experienced with Nigeria's city planning approach to date.

Such views agree with the lessons from Abuja where the linear and rigid approach guided by the master plan leaves citizens primarily excluded from the decision-making processes. The city thus continuously fails to reflect the needs and priorities of contemporary urban residents in an inclusive manner. Heinelt, (2002) and Healey, (2006) state that planning no longer dwells around a central unit (the president, the head, the planner, the government) who or which solely oversees governance, decision-making, planning and implementation process. Instead, it is now much more concerned with how self-motivated people are collectively engaged in contributing and executing their vision particularly with the advent of integrated development plans and strategic urban development plans. These plans have redefined the planning process and content including emphasisi on public participation. In line with Heinelt, (2002) and Healey, (2006), this study substantiates the Abuja scenario in order to serve as a case of what prevails in most developing-country cities and also as a pointer to the cause of the prevailing condition of unsustainable cities and towns in Nigeria.

Farvacque and McAuslan (1992), Heinelt, (2002), Healey, (2006), Watson, (2009), Essien et.al, (2009), Ubani et.al, (2014) and Bracken, (2014) further substantiate how the rational-comprehensive linear master plan, as it is commonly referred to, has failed to achieve a compelling city vision, meet targets, execute plans efficiently or successfully facilitate the management of cities across the world. The findings of such studies guide towards possible hypotheses that the approach and implementation strategy of the master plan could be primarily responsible for the distortions and objectionable deviations in the scheme and purpose of the initial and subsequent Abuja visions, as captured in its various masterplans. Figure 2.2 demonstrates further information on the timeline of the most important transformation of development processes in Nigeria.



Figure 2.2: Major planning phases in Nigeria
Source: Assembled by author from Federal Government of Nigeria, (1962, 1975, 1976 and 1981) and Agbola, (2004).

The appraised studies lay emphasis on the need to engage appropriate participatory approaches towards the conceptualisation and pursuit of a city's future vision in order to guide sustainable development, not only in Nigeria, but for Africa in general. The disregard and absence of public participation in Abuja city planning constitutes the vital issue of investigation through the online platform for e-backcasting by emphasising the possibility of enhancing the inclusive involvement of citizens in the planning process, with Abuja as the case study.

2.4 Backcasting: A Tool to Achieving Sustainable City Vision

Backcasting is a progressive planning approach which is deemed to be, especially relevant where problems at hand are complex and when the prevailing status-quo bias constrains responsive solutions towards gradual or incremental approaches which is unlikely to go far enough in addressing the challenges. It is also useful when the problem implies a broad range of solutions and consequences with different costs and benefits that affect a party that did not choose to incur the costs or benefits (such as future generations) (Holmberg and Robèrt, 2000). It is therefore argued to be a much more enabling approach, especially for situations such as sustainable city problems that require significant transformative change at individual and collective levels. Backcasting for sustainable city visions entails thought and mental pattern that relates to a prioritised way of pursuing desirable futures envisioned through some distinct steps as appraised under studies such as Irurah et al, (2004); Vergragt and Quist (2011) and Neuvonen and Ache, (2017).

Backcasting is rooted in the emergence of human mental capacity to be able to temporally simulate across past, present, and future states. The technique facilitates the conceiving of alternative futures amongst individuals and communities, as commonly investigated under the new field of futures-studies (Bell, 2011). Saleh et.al, (2008) and Phdungsilp, (2011) argue that the backcasting method has been in use in several futures-studies since 1960, and was triggered by the need for expediting social change, and eventually led to the evolution of several futures-study techniques or tools. Before 1970, future studies dwelt more on forecasting of past and status-quo trends (historical) into the future on a business-as-usual basis. In contrast, professionals and scholars currently apply futures thinking (simulated futures) when considering futures-oriented issues in greater detail, based on an exploratory and normative approach (Lovins, 1976;

Jackson, 2011). The steps used in backcasting studies are very different from those used in forecasting approaches (see Section 2.5).

However, Höjer and Mattsson (2000) demonstrate that backcasting and different forecasting approaches should be viewed as complementary approaches with backcasting being most appropriate where forecasted trends reveal the risk of leading towards undesirable future states. Within a complementary approach, forecasting (predictive) methods thus serve as a reference pathway or trajectory baseline or business-as-usual (BAU) for the backcasting process. On its own, backcasting does not guarantee the outcome of the envisioned future as there will always be unforeseen opportunities and constraints along any backcasted-future pathways, thus calling for ongoing revisioning or re-orientation and even re-positioning of options (Robinson, 1990).

In the context of futures-studies, backcasting is aimed not at predicting a predetermined futures, but rather at facilitating coherence in action towards co-creating of a commonly shared future state out of the infinitely possible future-states (the desirable future). As a result, backcasting therefore serves as a complementary strategy for decision-making (especially for the long-term) thus facilitating the identification of risks and opportunities for policy options, assessing alternative policies and actions under different conditions and therefore, enhancing creativity and choice in policy-making.

Futures-studies are helpful under uncertainty as they allow for a variety of different future scenarios to facilitate convergence towards the prioritised or most-desirable one and the related pathway to be pursued (Ratcliffe, 2002; Schuck et.al, 2018). Besides future-studies, scenarios help stakeholders break through communication barriers and see how current and alternative development paths might affect their shared future, thus, facilitating a rethink towards changing a certain collective way of life, particularly in areas where conditioned detrimental status-quo behaviours and mindsets sustain a pathway of inertia (the do-nothing option).

Future-studies are often framed around three different types of future options which are: the possible futures (which focuses on what may happen), the probable futures (which concentrate on what is most likely to occur) and the preferable futures (which focus on what we would prefer to happen). The principal advantage of the backcasting approach is that it focuses on identifying and pursuing preferred

futures rather than passively experiencing the likely-futures. In most strategic planning, backcasting has been combined with scenario planning towards exploring alternative futures (Amer et.al, 2013). As an example, backcasting in Sweden was applied in attaining a sustainable social order guided by the five-levels under the Natural Step Framework (5LF) for planning and decision-making for complex systems and informed by unchanged structure thinking. The five levels applied were system, success, strategic, actions and tools. The 5LF was later transferred into Framework for Strategic Sustainable Development (FSSD), as appraised in Robèrt (2009).

Güell, (2009) also conceptualised qualitative and quantitative methods for improving the process of decision-making in futures through continuous and systematic exploration, creation, and testing of possible, probable and desirable futures. Quantitative methods such as forecasting techniques and cost-benefit analysis, amongst others, are employed for mathematical and statistical evaluations while qualitative approaches such as focus groups or expert panels and scenario-planning are mainly guided by intuitions and expert opinions. Qualitative complementary tools such as brainstorming, mind mapping and SWOT analysis are commonly used towards enriching the qualitative methods. These tools are applied in this study in order to guide the adaptatability of e-backcasting.

Studies such as Bagheri and Hjorth (2007), Höjer, Gullberg, and Pettersson (2011), Kok, et.al, (2011) and Wangel, (2011) have evolved four methodological approaches in backcasting. The first approach is target-oriented backcasting that focuses on developing and analysing target performance outcomes which are often expressed in quantitative terms. The second approach is pathway-oriented backcasting where the emphasises is on how change can take place and the measures that would catalyse and guide such change. Action-oriented backcasting is the third approach, and its primary objective is to develop an action plan, with a focus on who plays which role in order to achieve the required transitional or transformative change. Finally, participation-oriented backcasting (PBC) is used as a creative workshop tool or technique in which the methodology is deemed as secondary to the anticipated benefits of participation which is thus prioritised as the key focus of this study. Participatory backcasting concepts re-emerged in the 1970s as a new kind of normative future-visioning studies around the same time when the Abuja vision was being conceptualised. At that time, in the foresight and

forecasting communities exploring normative future visions was known as normative forecasting (forecasting based on trend extrapolation which was one of the most common methods used in city visions and plans). Which was clearly the primary approach used in conceptualising the vision and implementation process for Abuja from 1976-1989.

Some participatory-backcasting approaches have been further translated into diverse methodologies depending on the focus, topic or scale addressed (local, national regional or societal domain), the method applied to the backcasting framework or the way stakeholder participation is engaged. For example, Quist and Vergragt (2006) report two circumstances in which participatory backcasting was beneficial. The case studies are the Novel Protein Foods project under the Sustainable Technology Programme in the Netherlands and the nutrition case study of the Sustainable Households (SusHouse) project. The study concluded that the application of participatory-backcasting gave rise to a widespread stakeholder participation, sustainable future visions, several other analyses and creation of a furtherance programmes with different prioritisations for effective impact. Quist, (2007) proposed encompassing methodological frameworks consisting of five successive steps and four structures with various methods which are: policy tools, participatory tools, logical tools and administration, co-ordination and interaction tools for participatory-backcasting. The study merged tools, knowledge, methods, and results from different studies and disciplines in order to synthesise the technique applied in the study.

Soria-Laraa and Banister (2017) reported on a novel dynamic participatory process to address a policy-implementation gap through the engagement of practitioners, policy makers and researchers in a series of workshops that allow these gaps to be discussed in an open deliberative process. The study was based on the Andalusia region in Spain as the spatial context coupled with a clear policy-desire to implement a sustainable transport strategy for 2050 in a manner that reflects the usefulness of stakeholder engagement in the policy formulation process. Quist et.al, (2013) used a theoretical and methodological framework of a community arena approach, as a complementary tool for sustainable behaviour by local communities and consumers to manipulate how individuals think as well as how they conduct themselves by testing within three pilot areas in the Netherlands, Austria, and Germany. Carlsson-Kanyama et.al, (2008) carried out a participative

backcasting exercise on the development of future images of five sustainable European cities. This was performed with the participation of local stakeholders and based on a workshop approach for deliberating on sustainability-related issues with long-term perspectives within a 30-year horizon and guided by everyday life experiences. Giurco et.al, (2011) report a similar study but combining ecosystem with numerous social, economic, and environmental sustainability criteria. The combined action involved a 7-stage methodology situated within a backcasting approach in the form of 'iterative backcasting' toward the future vision of low CO_2 emissions and low water consumption for the Latrobe Valley in Australia. The study applied the backcasting method in enabling a wider process of participatory second-order backcasting, as advocated in Robinson, (1990).

Kok et.al, (2011) applied two exploratory scenarios, method and backcasting, to study the possible long-term implementation of the European Union Water Framework Directive. The two participation methods used were the qualitative, explorative scenario and a time ecosystem assessment plan. Through this process, four version of scenarios were developed together with dynamic plans based on combining milestones and actions. Backcasting was then as a real backward-looking enquiry through a step by step method from the year 2050 scenarios in the direction of the present-day. On the other hand, Kok et.al, (2011) admit that there is a gap between the list of strong basics and policy references coupled with unsettled discrepancies and flaws in the scenarios. The approach also altered a procedural outline for participatory backcasting established on five steps, which are: strategic problem orientation; developing a future vision; backcasting analysis; elaborate future alternatives and defining follow-up agenda, embedding results and schedule and stimulating follow-up. The modification are done in four steps along key elements of participatory backcasting and timelines as presented in Appendix D4 which is inline with sustainable city vision and principles.

2.5 Comparison of Forecasting and Backcasting Approach

The steps used in backcasting studies are very different from those used in forecasting. This section appraises studies on the characteristics of backcasting versus forecasting as commonly applied in the linear comprehensive master plan in order to substantiate the critical differences. Höjer and Mattsson (2000) reported that backcasting and different forecasting approaches should be viewed as

complementary, with backcasting as the most appropriate where present trends pose the risk of leading towards undesirable future states. Within a complementary approach, forecasting (predictive) methods (Figure 2.3) only serve as a crucial reference (baseline) or busines-as-usual trajectory for the backcasting process (Figure 2.4). Given that planning for the future aspires for the optimisation in the use of time and limited resources, the essence of a complete linear master plan is the desire to impose order through a linear process with key stages such as aims, goals, objectives, actions, programmes, and outputs. Under backcasting, an alternative (which entails constant appraisals; innovation in planning, status-quo state, physical features, and social or economic situations) is followed (Bracken, 2014).

The forecasting approach, as applied in a master-plan, primarily entails the gathering of information about present conditions, followed by extrapolating trends or trajectories according to expectations, fears, and possible opportunities, in an attempt to extend the current in order to predict (forecast) the future, based on historical-to-current-trend analysis (Field and MacGregro, 2018). Forecasting means merely drawing expectations out of present circumstances and adapting the present conditions to the expected changes in future so that negative impacts can be mitigated. The above explanation aligns with the forecasting world view that the future is entirely out of human control and thus human-subjects or actors can only expect and aim for minor adjustments. This contrasts with backcasting, where the view is that the future itself can be creatively invented to facilitate the pursuit of desirable futures. The key steps in forecasting can be summarised as follows:

- Information is gathered about the historical and present conditions
- Data about future possibilities and events are collected
- Expectations are drawn about future leanings out of present and historical trends
- Expectations are applied to the present situation to allow for hypothesising what the future might be
- The short-term plans are amendments on a short-term base carried out in order to steer within a favourable course of business (Faza, 2011)

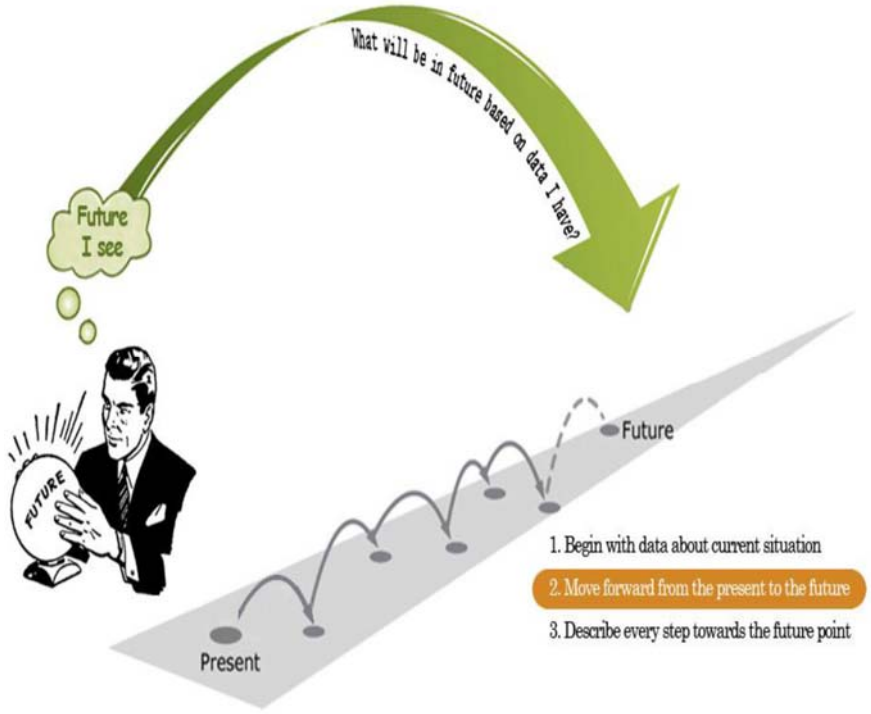


Figure 2.3. A graphic representation of the forecasting process
Source: (The Natural Step 2009, pg. 9)

A synthesis across multiple future studies now concurs that forecasting is not sufficient for long-range planning where situations of high complexity exist (where complex trends interact), and forecasted trends become more and more uncertain, and also where underlying patterns or drivers of the trend constitute part of the problem (Dreborg, 1996).

For more responsive approaches, futures-studies now motivate for multi-methodological approaches based on identifying and amalgamating various appropriate techniques, such as environmental scanning, trend analysis, Delphi and scenario building which can guide creative scenarios within a time-horizon of 30-50 years (Dortmans, 2005). Forecasting can be based on either projection or guessing or a mixture of both. Projection or guessing is merely the extrapolations of past trends through the present into the future time horizon. The trend may be linear or nonlinear, and it may be based on a long or short time series of previous observations. The longer the set of observations, the higher the likelihood that the early observations no longer reflect the fundamental relationship which needs to be measured and the shorter the time series, the less the statistical certainty that the trend is real (Daly, 1976). This makes backcasting a much more promising

approach, especially for situations where significant changes are needed with broad scope and an adequate time-horizon (50-75 years) that permits the formation and execution of very different choices and alternative options.

Dreborg, (1996) notes that, backcasting is most useful in scenarios of highly complex problems affecting many sectors and levels of society. When there is a need for significant change, having a dominant trend as part of the problem, and also in cases where to a great extent, the problem is driven by externalities at play, backcasting comes in handy. As a complementary relation to forecasting, the key backcasting steps are as follows:

- Gather data or information on present conditions and circumstances
- The targets or vision to be pursued is established and defined.
- The information/data collected are analysed to ascertain the level of changes and amendments required for the current conditions in order to align with the vision established within a viable time-horizon.

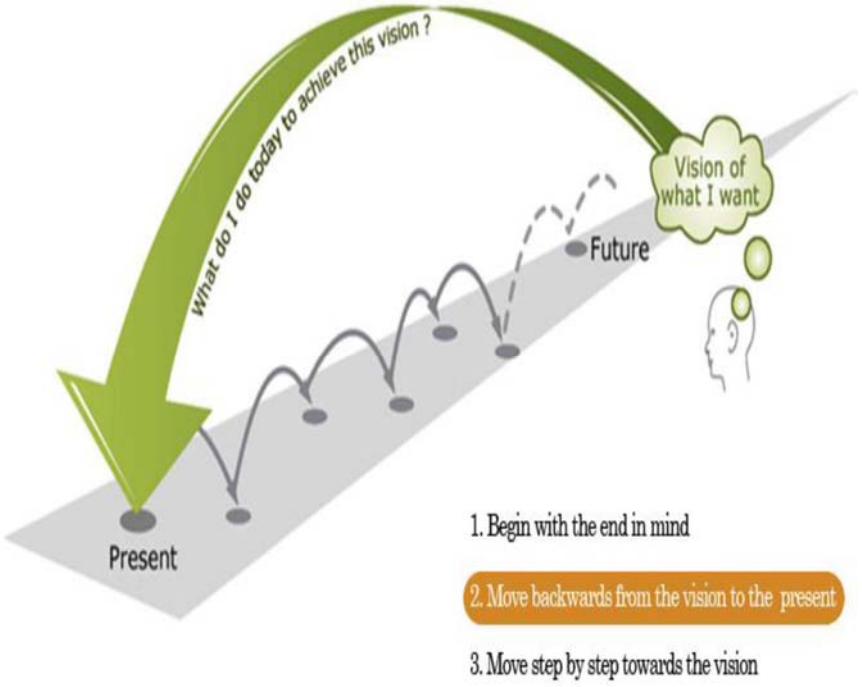


Figure 2.4. A graphic representation of the backcasting process
Source: (The Natural Step 2009, pg. 9)

One of the significant goals in the backcasting approach is to stimulate the scenario developers to deliberately shift from existing mental model structures by focusing

on the desired future state, rather than the problematic present. In so doing, the socio-technical path-dependency drivers inhibiting fresh cognition can be mitigated. This constitutes the main reason why backcasting scenarios are typically envisioned within a couple of decades ahead which thus allows for leveraging on significant societal changes, especially where such changes are not supported by (or even run contrary to) contemporary trends.

Köves et.al, (2013) and Soria-Laraa and Banister (2017) are of the opinion that it has become imperative to make sure that responsive future visions from the backcasting process are not solitary made up of rational ideas by experts, but also of shared or collective and creative thoughts. This has been argued in numerous studies as visions could also have the expected ability for addressing critical challenges, such as sustainability, where no responsive rules or institutions are immediately available.

Social and collective interactions among stakeholders can also lead to knowledge developments and results not only at the mental level but also with respect to the assessment methods, outlooks, and major beliefs which is conceptualised as 'higher order learning.' In policy-oriented learning, for instance, higher order learning involves redefining policy goals and adjusting problem definition and strategies, while in organisational learning, it requires changes in standards, ideals, goals and working processes governing the decision-making procedure. These changes are of great importance in the case of complex problems involving players with different intellectual backgrounds or action ideas. One of the key benefits is that higher-order learning leads to changes in mindsets or behaviour and thus broadens the space for alternative actions (Vergragt and Quist, 2011).

2.6 Visioning and Re-envisioning Processes

Developing a long-term vision and pathways for sustainable city transitioning is the essential first step towards pursuing the new pathways. According to Newman and Jennings (2012), re-envisioning is a continuous process that involves honouring the past, being present, looking ahead and keeping future generations in mind. Visioning, on the other hand, is understood as the practice of arriving at a collective vision beginning with "where we want to be" as the initial point (Shipley and Michela, 2006; Meadows, 2012). Ache, (2000) argues that a vision is a ‘‘mental manifestation of sensation’’ that is far more than a concept developed and

discussed. The study further contends that a vision comprises ideas and administrative processes that can be stirred and at the same time, is interpretable and flexible without losing its composition. Affirming that vision must stay open for adaptations in response to unforeseen constraints, Quigley, (1994) similarly notes that vision offers a roadmap to the future and can thus guide how people are to act together to achieve whatever they regard as their shared desired future outcomes. Van der Helm, (2009) observes that for the concept of the vision to be understood, it must consist of three of the following aspects; the future, the ideal and desire for deliberate and long-term change. Van der Helm, (2009) further lists seven types of visions that share these characteristics despite their differences (see Table 2.1).

Table 2.1: Categories and features of a vision

Vision type	Basic distinguishing characteristic
Humanistic	Universal betterment
Religious	Worldly life about the hereafter
Political	Leadership and support
Business/organisational	Leadership and convergence
Community	Consensual integration of actors and collective action
Policy (support)	Network constitution and decision-making
Personal	Personal development project

Source: (van der Helm 2009, pg. 104)

In reference to Table 2.1, this study is located within the community type of vision, given that it explores tools and mechanism for inclusivity in order to guide the consensual integration of actors and their collective ideas towards envisioning their futures especially based on a prototyping approach within the context of re-envisioning for Abuja.

One major challenge of envisioning desirable futures and related pathways is that experts are bound by the status-quo of their knowledge field while other actors are mainly locked into the present-day concerns and ideals and thus have great trouble disengaging their attention from the present in order to factor future option. Ascher, (1979) refers to this predicament as "assumption drag." Landry (2006; 2008) rightly observes that strategic planning, teamwork, and effective leadership are essential steps towards ensuring comprehensive re-envisioning in the planning, implementation and monitoring stages of sustainable cities. It takes both visionary individuals, as well as the interactions among stakeholders to ensure effective visioning and re-envisioning processes towards sustainable city pathways and outcomes (Spillane, 2012).

2.6.1 Envisioning a new capital city

A new city stands as a relatively self-sufficient settlement naturally built from the start on vast plain lands that is extensive enough to sustain a variety of housing types and community facilities. It also provides ample opportunities within its frontiers such as various job openings for its residents, health and educational serves (Abubakar and Doan 2010). Hobson, (1999:20) notes that new town creation is the ‘final procedure of modernist planning' since it dwells on a comprehensive conventional plan that emphasises imposing strategies and programmes developed by professionals and executed through the application of a top-bottom scheme.

New town developments are generally located on vacant sites, thus providing opportunities to control the city’s development and growth without the constraints encountered in existing but dysfunctional cities. Capital cities command a prominent position within the urban hierarchy, where in many countries; they are the most important cities and also serve as the economic and cultural hubs of their countries. Some countries have opted to relocate their capital cities while others are in the process of building new capitals with many others contemplating relocation (Harris, 1999; Rossman, 2017; Abdelwahab and Juvara, 2018).

The history of cities is comprehensive by way of capitals being situated in what are argued to be neutral areas in order to mitigate local rivalries. Helpful examples include Rome, Washington D.C., Ottawa, Canberra, and Brasilia. According to Spate, (1942), a comparatively neutral location was a clear benefit and the key feature responsible for the selection of Rome in 1870 as the capital of Italy, together with the absence of unity amid the north and south and the strong regional state of mind that remained present in the different governance mechanisms of the state. The founding of Brasilia as the Federal Capital of Brazil in 1956 was occasioned by the Federal Government's aspiration to be the principal controller in their own capital city. The other reasons for its creation included the resentment between the core zones along the east shoreline and diverse dysfunctionality such as congestion due to development, commercial activities, built-up areas and traffic flow issues which plagued Rio de Janeiro. Another purpose for the relocation of the capital was the administration's aspiration to catalyse the progress of the country's surrounding area which was deemed to be a region of vast potential treasure which had not been reaped because of the absence of centres of

exchange and management. The founding of Brasilia was, for the same reason, also motivated on the basis of regional planning as well as national economic development (Stephenson, 1970; Obateru, 2004 a, b).

The key trends in the founding of new capital cities have become a typical option with many postcolonial countries, (especially in post-independence Africa) under the popular concept of "a city without divisions" (Obateru, 2004 a, b). Watson, (2014: 1-17) notes that, in the last four decades, Africa has witnessed economic growth which in turn, makes it very attractive to global property designers. In addition, the rapid rate of urbanisation indicates a steady rise in the demand for urban projects and services, especially within the context where African countries aspire to be perceived as 'catching up with the West' (Watson, 2014). Their leaders' project symbioses aspirations through creating modernising initiatives. The city modernist-plans of such capital-city initiatives emphasise the spatial or infrastructural phase of development with marginal thought for socio-economic needs.

The plans are normally status quo dependent, molded in the order of the garden city model, the urban arrangement take after western architecture and are normally prioritised over human concerns and values, such as cultural enhancement or socio-economic priorities such as job creation. The on-going new towns still being built in Africa are not only 'urban unrealities or illusions' that are way past the range of most citizens (most of whom are very poor and live informally), and repeatedly directed towards the eviction and exclusion of susceptible low-income residents in a way that further worsens disparities and marginalisation (Waston 2014: 1-17, Kester, 2014). Several African countries have adopted the new town development concept after independence as part of their local planning strategies to establish post-colonial new capital cities. Examples of post-colonial African cities established as capital cities includes Abuja (Nigeria), Nouakchott (Mauritania), Dodoma (Tanzania), Kigali (Rwanda), Gaborone (Botswana), Lilongwe (Malawi), and Yamoussoukro (Ivory Coast). These new capital cities were created to function both as managerial roles, to halt colonial imprints on the older capitals, offer satisfactory housing and important urban services, and to offshoot regional development (Hayuma, 1981; International Planning Association, 1979). The capital cities served as massive decentralisation points quite far from major cities and were primarily catalysed by or through public-sector projects. The cities were

thus inspired primarily by a sense of national pride and the aspiration to expedited development.

In the case of Nigeria, the British left the country with the sense of an accomplished mission of having created a Nigerian State out of many distinct nations where Lagos served as the Federal Capital city. To the British, Nigeria was a success story of her colonial adventure because of the peaceful transition to independence in 1960. But shortly after, as Nigeria grew older in autonomy, its political and economic fortunes began to decline. The next 15 years witnessed several coups and a major civil war and several other political crises which deeply challenged its sense of being a united nation or people. Among the crises that shook the country's sense of national unity are the 1962-63 census crises, the creation of the Mid-Western Region, the appointment of the Vice-chancellor for the University of Lagos, the 1966 army overthrowing civilian government and the declaration of the Biafra civil war by eastern Nigeria in 1967 (Obateru, 2004 a, b). The system of governance inherited from the British posed critical challenges around the centralisation of governance, leadership approach or legitimacy in context of the heterogeneous ethnic nature of Nigeria and other concerns around social ethics, wealth and affluence, inflation, poverty and inequality, amongst others.

This is to say that the national geographic cohesiveness imposed on Nigeria through the colonial authority could not stand the test of time, especially given that the country had begun to experience ethnic and political crises right after independence. The Biafra civil war resulted in several aftermath effects that changed Nigeria's politics, redefined its economic base and gave birth to new social ethics (Elleh, 2016; Falola, 2016). In particular, before the civil war, all the regions had some form of autonomy from the Federal Government which acted as a collaborative authority in most cases. After the civil war, in 1970, regional governments were abolished, and all powers were subsequently centrally executed at the Federal level. Fearing regionalism as a threat to national unity, the Federal Government dominated in both political and economic decisions of all the states and thus all the states lost their previous level of autonomy. The dominance became a common approach during the military era of 28 years (for more than half of the total of 50 years of Nigeria's independence) because the military saw the centralised system of governance as more convenient. Among several other reasons, the drive towards consolidation of power led to the creation of the new

Federal Capital City of Abuja. The list of factors responsible for relocation of capital cities of the world by Spate in 1942 similarly influenced the location of Abuja. These include;

- As a factor, centrality was expected to ease contact between the people and government and minimise the distance to all parts of the country
- Defense policy also demanded a central setting to guide against external attack, as it is more challenging to apprehend a centrally positioned city than a frontier capital
- Neutral territory was an additional and essential locational condition for the relocation of a federal capital. A neutral region or city is commonly imagined as a place free from sectional interests conferred by citizens or key ethnic groups, since the reality of local or sectional conflicts is disguised in the existence of a federal constitution.

One of the key ideas behind the Abuja vision was the need to create nationalism in Nigeria which was acknowledged as a significant problem from the beginning. In general, knowing how difficult it was to create this sense of patriotism, administrators decided to use inorganic policies of relocation in order to catalyse organic emotional ties because at the time of conceptualising the Abuja vision, it was so challenging to create nationalism through a mere paper strategy. The challenge of unity and patriotism was re-ignited by the Biafra war such that nationalism had to be evolved in order for the country to recreate itself. A detailed analysis account of the Abuja vision and implementation process is further enumerated in Chapter 4.

2.7 Inclusiveness in City Vision

Inclusiveness can be understood to entail an equitable and consistent treatment of all groups or all members within a given social group. In addition, inclusiveness is often associated with participation and therefore seen as one way of enhancing sustainable and equitable urban development. Studies on sustainability and sustainable city development have acknowledged that inclusivity has a positive influence on community-futures visions, and thus acts as a vital stimulus for change and problem-solving in the planning of sustainable cities (Berke, 2002; Wiek and Iwaniec, 2014, Evans et.al, 2016).

Stout, (2011) also argues that in order to pursue goals and policies, consistent with inclusiveness ongoing social engagement is crucial for the success of any collective visioning process, especially when facilitated alongside participants across all categories of stakeholders (including initially marginalised community members). Community engagement would encourage diversification of ideas among participants and thus enhance potential sense of ownership of the resultant vision as well as generate avenues for robust and long-term sustainability. Stout, (2011) observes that inclusive engagement of communities transforms ideas and plans into a process through which everyone in a social grouping continually imagines the future they most desire and then plans on how to proactively pursue the imagined future. This process means that the community and personal visions cannot be viewed as separate as one would have to entail the other (as enumerated in Table 2.1). In a similar line, Elbanna, (2009) and Gaventa and Barrett (2011) affirm that including a wide-range of citizens with an strong wave of information, enhanced openness, communication and responsibility contributes towards harmonising and aiding development. In the long run, inclusiveness facilitates lasting success primarily based on the insight and commitment of a broad range of stakeholders.

The discourse on inclusivity have gained significance since 1999 when UN-HABITAT led the campaign on inclusive city-vision and plans, with emphasis on women in the decision-making processes primarily to mitigate prevailing global practice of excluding women. Since then, so many studies now advocate inclusiveness in politics, policy, and decision-making in both governance and city planning (Abah and Okwori 2005; UNESCO. 2005; Adebanwi, 2007; Alubo, 2011; Ebo, 2013). Douglas (2013) envisaged an inclusive city as one where residents have equitable access to sustainable livelihoods, fair housing and reasonably priced (affordable) essential services, such as water and sanitation as well as energy supply. UN-Habitat (2007) and Evans et.al, (2016), defines inclusive city as a place where everyone, regardless of privileged status, sexual category, age, race, ethnicity or belief has the opportunity to participate efficiently and meaningfully in the opportunities which cities have to offer. UN-Habitat, (2007) and Evans et.al, (2016) reiterate that inclusiveness in cities is crucial as it facilitates the following: reduction of inequality and social strain unites the understanding, output, social and physical resources of the poor in city development and re-affirms neighbourhood rights to urban development. The recurring themes of

inclusiveness therefore focus on facilitating participation in decision-making as well as, access to opportunities and essential services in the city. On the contrary, exclusion is characterised by marginalisation, wealth and infrastructures and services distribution are inequitably shared, and inequality escalates as the city develops, in a manner similar to what is now evident in Abuja.

In Nigeria, inclusion and exclusion criteria can be appraised across diverse categories such as income, gender, citizenship and ethnicity/tribe, age, culture, and religion. Para-Mallam (2010) is of the view that gender disparity remains a serious challenge in Nigeria due to the sturdy effect of insistent social and religious based gender biases in spite of a national gender policy aimed at gender equity and women-empowerment. On the whole, the social progress outcomes and experiences of a female in Nigeria are not as good as that of her male equal or colleague due to a combination of socio-cultural practices and inadequate consideration to gender issues in government policy and implementation. Gender inequality makes women regularly marginalised in education, employment, and political spheres (Nwagbara, 2009; Lamond et.al, 2015). While acknowledging the increasing efforts by the government within the last decade, various indices persistently highlights that more action still needs to be taken in the area of women's rights and empowerment in order to improve on gender equity outcomes. In line with the above, this study attempt redress of gender disparity by ensuring that women were encouraged to participate in the four platforms. It was also ensured that their inputs throughout the data collection stages irrespective of their societal status were recognised (see Tables 5.8, 5.9 and 5.10 and Figures 5.8, 5.9 and 5.10 in Chapter 5).

At another level, citizenship rights in Nigeria remains highly problematic, primarily due to several fundamental national issues that have continued unresolved, even after independence from colonial rule. Abah and Okwori (2005) and Adebanwi, (2007) argues that to be able to understand what citizenship means regarding inclusion and exclusion within the Nigerian context, calls for an understanding of the underlying historical formation of the country and the complex crises that have plagued the Nigerian federation across ethnoreligious, class and intra-class divides. The best starting point is the list of citizenship rights as stated in the Nigerian Constitution of 1999. Adebanwi, (2007) notes that constitutional definition allows a Nigerian to acquire citizenship through three official mechanisms, which

are by birth, registration and naturalisation. Whereas the constitution may not be the sole reference document in determining citizenship-rights (especially because of its limitation of not being a product of public participation), it still remains the primary reference of defining what constitutes citizenship in Nigeria, as well as related duties and rights of citizenship. In this regard, Nwachuku, (2005) describes two forms of citizenship in Nigeria where both forms constitute some of the criteria of inclusiveness in any decision-making process. One such measure is the guarantee of formal rights between an individual and the state. The second one is what Nwachuku, (2005) calls localised ethnic citizenship or indigeneity which is considered as an ethnic identity that locates individual rights and entitlements within racial or ancestral spaces within a country. The two citizenship criteria formulate broad national citizenship rights because the local state or local government area (ethnically defined) becomes the locus of the real fulfillment of the right to citizenship. Further on, Nwachuku, (2005) argues for a rethink of these citizenship criteria, stating that such citizenship regimes encourage political structures that engender exclusion arising from contradictory laws often masking infringement on the right to livelihoods, land and political participation of others. This study further substantiates the view that the right to eligibility and participation in decision-making and plan implementation should not be based solely on ethnic affiliation, especially within a federal country where citizens should be expected to enjoy rights to livelihood and mobility in whichever member state one chooses to locate.

The views on the essential elements that would constitute inclusive visioning and the implementation process, as substantiated in studies such as Nwachuku (2005), Shipley and Michela (2006), Adebanwi (2007), UN-habitat (2007), Nwagbara (2009), Elbanna (2009), Stout (2011), Gaventa and Barrett (2011) and Douglas (2013) have been applied towards the framing of the critical focus of this study. According to Chaturvedi (2013), the best method to achieve inclusivity or total inclusiveness revolves within three defined ingredients which are indigenous knowledge, their local resourcefulness, and the empowerment of the local population. The three ingredients act in a manner that answers to the inclusivity goal.

This study, therefore, adopts wide-ranging inclusive principles that encourage mutual and shared understanding through participatory decision-making

processes as scoped in the study. The evaluation focused on the level of inclusivity enhancement facilitated through the application of an e-backcasting approach for the re-envisioning of a sustainable city for Abuja. The essence of this approach was to help in substantiating the view that, for urban planning practices to adequately support inclusiveness in city planning, participation must be an integral part of the visioning and planning as well as the implementation processes. The study also engages with the various forms of inclusive and exclusion criteria within the Nigerian context by analysing participation levels along tribe, sex/gender, age, tribe, income, citizenship and ethnicity, among other commonly used exclusionary factors or drivers.

The inclusion and exclusion criterion allows for an assessment of the level of participation across the common divides in order to test the experiences of planning-with, rather than to deciding for the people or stakeholder. The inclusive and participatory tools applied in this study would aid in ‘bringing stakeholders together’ and generate shared ideas and perceptions that can give city planners and administrators directions on how to turn their plans into comprehensive action plans with goals on how to achieve the Abuja vision. However, without bright ideas of what the social, economic and environmental dimension of Abuja should look comparable in this vision, it is hard to plan well-organised path, which will enable this change. This study, therefore, focuses on what it means to construct a sustainable city vision that enhances inclusivity across the social, environmental and economic dimensions of the city and thus empowering participants in a manner that improves their resilience as they continue to engage actively in the implementation and subsequent re-envisioning of such plans.

One major challenge of envisioning desirable futures and related pathways is that experts are bound by the status-quo of their knowledge field while other actors are mainly locked into the present-day concerns and ideals and thus have great trouble disengaging their attention from the present in order to factor future option. Ascher, (1979) refers to this predicament as "assumption drag." Landry (2006; 2008) rightly observes that strategic planning, teamwork, and effective leadership are essential steps towards ensuring comprehensive re-envisioning in the planning, implementation and monitoring stages of sustainable cities. It takes both visionary individuals, as well as the interactions among stakeholders to ensure effective

visioning and re-envisioning processes towards sustainable city pathways and outcomes (Spillane, 2012).

2.8 Integrating e-Government towards Achieving a Sustainable City Vision

Electronic governance or e-governance is a two-way communication protocol which engages the use of information and communication technology (ICT) towards expediting delivery of government services (Falco and Kleinhans, 2018). It also involves the exchange of varying data and communication transactions, integration of various stand-alone systems and services as well as back-office processes and interactions within the entire government structure (Humadi 2015; Rajiv, Amit, and Arindam, 2017).

Coursey and Norris (2008) noted that official government sites delivering information and services began appearing on the web in the mid-1990s. While e-government encompasses a broad range of activities, it mainly entails four primary representations which are; government-to-citizen (customer) (G2C), government-to-employees (G2E), government-to-government (G2G) and government-to-business/interest groups (G2B). The Government-to-government (G to G) sector represents the backbone of e-government, and it deals with data sharing and electronic exchanges of ideas between various government agencies while government-to-citizen (G to C) facilitates citizen interaction with government as a primary goal of any government.

Ojo, (2014) argues that e-government platforms increase access of local citizens to their elected representatives as well as to essential social services through the facilitation of information and communication technologies. The technology enhances effective communication between the government and the governed at the grassroots level and thus creates an opportunity for citizens to receive on-going feedback from the appropriate government channels. Sachdeva, (2008) gives another dimension to G to C as Citizens-to-Government (C2G). This type of interaction only relates to areas where the citizen interacts with the government (such as citizens voting for their government representatives; carrying out census where residents provide information about themselves to the government, or taxation where citizens have to pay taxes to the government).

For e-government services to be successful, studies such as Nour et.al, (2008) and Latifa, Wafi and Vishanth (2017) argue for e-government initiatives to be implemented logically in line with the diversity of government structures, local cultures, economic conditions, technological resources or infrastructures, citizens' trust and socio-political factors. Shim and Eom (2008) and Kurfalı et.al, (2017) urge governments to continually appraise the effectiveness of e-government processes, mainly as a tool for promoting good governance as well as for strengthening reform-oriented initiatives which would contribute towards enhancing relationships with citizens and facilitate more efficient monitoring and evaluation processes. eGovernment can thus aid policymakers and urban development authorities in pursuit of sustainable urban development.

Osimo, (2008) noted that prevailing approaches in measuring progress in e-government implementation were rooted in an old model which was thus losing its relevance. The study argued for a new method using recent innovations in internet development called Web 2.0 and especially integrating the monitoring of progress or impact of e-Government. Millard, (2008) and Alam and McLoughlin (2018) argue that Web 2.0 has helped in creating a more effective model for e-government as it offers revolutionary tools for gathering, organising and sharing information across all sectors, individuals and organisations. "Web 2.0 technologies" constitute a platform for a diverse range of social media through which individuals can interactively engage as active participants (individuals can create, organise, edit, combine, share, comment and rate Web content through these media tools). The platform also involves interacting and linking to each other as well as operating social networks for diverse needs and goals. The leading Web 2.0 technologies at present include platforms such as Google, Weblogs, Wikipedia, Myspace and Second Life, as well as social networking hubs, such as Facebook, Myspace. The technology or hub also comprises people-based communication modes for chatting, chat groups, and photo-sharing platforms (such as Flickr). Video casting and sharing such as YouTube as well as audio-sharing (e.g. podcasts), and mashups, widgets, virtual worlds, microblogs (such as Twitter), social annotation and bookmarking of Web sites, and many more (Chun et.al, 2010, Akintola, Yusuf and Odutayo, 2017). The technologies have become widely adopted and thus in turn are starting to, influence e-governance approaches to the use of the ICT tools for e-government/e-participation.

Motihar, (2015) claims that e-governance is carried out by the governed, for the governed and of the governed. The primary rationale for e-governance would therefore be to effectively and efficiently ensure that services intended to reach the targeted citizens are effectively delivered. The key criteria for measuring the success of e-governance would be security, functionality, and transformation (Roman, 2013). Nour et.al, (2008) are of the opinion that e-governance platforms have been able to compensate for significant lapses in conventional governance especially through facilitating efficiency and reducing paperwork. The technology has therefore contributed to a more satisfied citizenry and widespread interest in e-governance applications while promising further potential benefit of providing clear, transparent, interactive, easy to implement and just solutions within faster time frames. Differentiating between claims focuses on developed versus developing country experiences-the significance of the digital divides

Molinari and Ferro (2009) affirm that e-government/e-participation and social media play an important part in the construction and diffusion of identity for citizens, as one of the valuable means of creating a shared sense of belonging. In spite of credible success in the deployment tools of e-governance, it still faces many challenges as it evolves. Stakeholders' access to this essential social service requires diverse communication technology infrastructure services which would enhance effective communication amongst citizens and their government. This raises the affordability concern, both in terms of hardware, apps and data resources as factors limiting active participation as observed among participants' experiences during the application process of the prototype e-backcasting (see Chapter 5, Sections 5.3.5 and 5.6).

The first step towards e-governance is to develop tools and approaches, guided by a comprehensive understanding of e-governance services sought by the diverse range of different stakeholder groups. The first strategic issue for this study was to adopt the use of Web 2.0 social media tools that aided the understanding sought through engaging a broad range of different stakeholders under a prototype-guided action research design.

2.8.1 Adaptability potential of e-backcasting for envisioning sustainable city

De Kool and Van Wamelen (2008) note that social media network sites enable interactions and linkages in a more open, transparent, participatory, collaborative and innovative way. In general, the advantage of an online platform is that it provides free, interactive, easy-to-implement, and more inclusive opportunities in the shortest possible timeframe (Stragier et al, 2010). Spurgeon, (2007) also considers online platforms as the most interactive of all communication media because they are open to most forms of computer-aided technology and also enhance interactive engagement with immediate feedback as a critical benefit.

Stromer-Galley, (2004) presents interactivity as having two distinct elements: interactivity between people and interactivity between people and computers or networks. Bretz and Schmidbauer (1983) re-stated that to describe a method as interactive, there must be three actions: a statement, question or request and response. The study further notes that interactivity involves sending a message from communicant A to communicant B; a response from B to A based on what A has just said. This study applies this stance towards an interactive approach for soliciting statements, questions, and responses between the researcher and the purposely sampled participants. Sharp, (2002) posits that, for there to be a meaningful and excellent online interaction and motivation to harness interactivity opportunity of the internet power successfully, there is a need to analyse the following factors;

- The audience(s) with whom one will communicate, which would thus include(s) current customers, vendors, employees, analysts, the media, the user's community or competitors
- What stakeholders want and what is expected from them,
- Translating the needs into specific internet capabilities, and evaluating the return on investment.
- In order to successfully carry out this study, the suggestions above were applied with the primary objectives of a vast number of participants through both top-bottom, and bottom-up approach, as opposed to the commonly (or solely) applied top-bottom approaches.

Lyons, (2012) argues that in spite of the low-cost and interactive nature of Facebook, as well as its rapidly changing environment as a socio-media tool and being the most commonly used interactive socio-media tool for online public engagement by many governments globally, there are still limited studies on its relevance for e-governance. The study further notes that little is known on what method to use in making the most out of social media in comparative to its level of impact, the type of participants, how they can be optimally involved and its contribution to the online public engagement activities.

In an attempt to address this shortfall, over 500 people were convened in a Facebook-based discussion about transportation policy for the city of Vancouver, Canada. Although the e-deliberation was not as successful as the study had hoped, it provided a conservative, but more precise view of how social media can be harnessed for useful deliberative public engagement for long-range planning. The key recommendation arising from the study was that there is the need for further attention to social media based deliberation with efficient process design, participant recruitment, and the development of tools that aid discussion. This recommendation constitutes the insight that guided this study to focus on e-backcasting based on an online platform and socia-media tools.

Conroy and Evans-Cowley (2006) also examined the use of information and communication technology as e-government instruments in promoting citizen participation in the planning process and the influence of demographic factors of the year 2000 census for 590 US cities. The analyses suggest that current e-government attempts to capture citizens' opinion was limited in population, scope, and variety. The study indicated that government agencies need to measure public opinion by taking advantage of existing forums that would thus facilitate access to a more representative distribution of voluntary and willing participants from all socio-economic and cultural backgrounds. The study further recommends that the government could provoke responses to policy either through direct surveys or more obvious observations based on innovative IT solutions to collect, sort out, analyse and visualise data. This study applied creative online interaction tools to collect data, visualise and analyse information on participants' views on the sustainable future(s) for Abuja. However, this was undertaken on the basis of an individually-resourced platform rather than e-governance platform which a public-sector authority can offer for the overall public service.

With a total population of about 200 million people as at 2014, Nigeria has been reputed to have the highest level of internet active population in Africa and is ranked 11th in the world. Olaito, (2015) and Okunoye and Ilori (2016) estimate that in 2012, Nigeria had close to 56 million internet users, which constitutes 33%. By 2013, internet penetration had risen to 38% and then increased further to 45.1% by 2015. This implies that about 76 million of the total population have access to the internet. Olaito, (2015) further reports that out of 115 million mobile telephone subscribers in the country, 35 million use handheld devices to access internet data services. The most frequently used social network system appears to be Facebook, 2go, Twitter, Eskimi, Google+, Naija, Skype, Mobofree, Nairaland, and Linkedin. Facebook records over 16 million users (Baro et.al, 2013; Financial Nigeria, 2016). The advantage enjoyed by these platforms is that they are affordable to all classes of people and they can work on non-smart phones as well which thus explains their relative popularity and high but varying level of adoption. The affordability thus enhances the potential for ebackcasting approach for this study.

Berry, (2011) argues that the opportuinities to leverage of these social networks is tied to age and levels of usage. Ayodele, (2013) reports that young adults (age 15 to 34) demonstrate a high probability of being social network users, much more than those of 35 years and above. Ogunlesi, (2015) also states that, especially among the 15 to 24 age group, WhatsApp, Facebook messenger, Instagrams, and 2Go are estimated to be the most widely used tools. The study further explains the use of internet varies considerably amongst the technology users (chatting, sharing and exchange of pictures). Abubakar, (2011) and Nwokeafor, (2015) note that about two-thirds of the Nigerian youth use the Facebook platform for other reasons over and above the exchange of social content. The relatively younger users demonstrate greater probability of using the internet and social networking sites more frequently compared to older people.

However, there is growing evidence that the older age groups of between 45 years and 70 years are becoming more active on-line as well. Olaito (2015) posits that the top priority of older users is towards job or business execution, studies, email, news and information, social networking, downloads, and entertainment (music, videos, gaming), as well as online shopping. These arguments gave insight as to the expected usage and age bracket for web users in Nigeria, which further

influenced the prioritisation of users between 18 years and above as the target group for participation in the study.

Developed nations like the USA, UK and most of the European countries have shifted focus from merely developing the e-government platform for e-services (aimed at providing access to information for its citizens or customers), and are now focusing on driving significant backroom changes that can enhance user experiences of the electronic service being provided to its customers or citizens.

In line with the above, the government of Nigeria has embarked upon a number of e-government initiatives in recent times, even though the country still ranks low in terms of e-government facilitated services to its citizens. One of the initiatives focuses at enabling e-government being used as an anti-corruption tool through initiatives such as the introduction of the Bank Verification Number (BVN) scheme by the Central Bank of Nigeria (CBN) with the primary objective of curtailing the high rate of cyber and financial crime, protecting customer-transactions and enhancing confidence in the banking sector (Nwadinobi, Peart, and Adams (2018). In addition, Nigerians seeking to travel outside Nigeria, as well as those residing within more developed countries, have to make use of the Nigeria Immigration Service (NIS) web portal, thus making it the most developed e-government service-portal in Nigeria (Okunola, Rowley and Johnson, 2017). In Lagos state, e-government was implemented using an Environmental and Resource Planning (ERP) system, designed and developed within the context of Lagos State's e-Services project aimed at enhancing socio-economic developmental of the state (Choudrie et.al, 2017).

Conroy and Evans-Cowley (2006), Nam (2013), Inayatullah and Song (2014), dwelt more on the effectiveness of e-governance platforms in the pursuit of the city management agenda but without the objectives of integrating a backcasting approach using online platforms). This study was hosted on a platform outside formal government forums that focus on citizen engagement because online platforms developed strictly for official government services are understood to be different from similar platforms developed outside e-governance platforms. Through this avenue, participants are empowered and allowed to express themselves freely outside similar, but formal government forums. In addition, an e-government platform approach was deemed to entail bureaucratic limitations and

time constraints, especially with regard to negotiating with the relevant departments of the municipality in order to gain access to their platforms. The approach therefore tries to overcome the challenge noted by Gberevbie et.al, (2018) with regard to non-inclusion of citizens in the formulation of public policy due to the low level of literacy rate as well as government's inability to provide the necessary infrastructure. Being an exploratory study, the focus is geared towards evolving sound and clear guidelines on how e-backcasting could be adopted towards addressing the inclusitivity challenge. The approach adopted also intended to break through the challenge noted by Lyons, (2012). Gberevbie et. al, (2018) with the sole aim of soliciting and recruiting a more extensive range of participation. In line with Bretz and Schmidbauer (1983), Sharp (2002), Stromer-Galley (2004), Spurgeon (2007), the study investigated how the interaction within the social media context could be optimised in response to participants' needs and the issues for which they are being engaged.

Even though located outside government platforms, the overall strategies adopted for the study, adapts an e-governance approach to the empirical process. The platform was not just about the interactions but also aimed at improving co-operation amongst participants as well as empowering the marginalised citizen (Motihar, 2015). The visions developed through this study emerge from the perspective of all participants contributions in the decision-making process and thus enhances the potential for on-going ownership and legitimacy of the vision among participants since all decisions were solely theirs. In the long term, the platform holds the potential of being perpetuated as a civil-society action platform that would complement long-term urban development initiatives for Abuja.

Given that most of the participation-oriented backcasting approaches are based on the conventional face-to-face backcasting forum (by convening selected and pre-determined experts and stakeholders into workshops and conferences), the essence of adopting e-backcasting for the study was to evaluate its potential in addressing the inclusitivity shortfall through the application of an interactive online platform with the ability to support an all-inclusive broad-based stakeholder participation. Several studies have so far reinforced the view that inadequate consideration for stakeholder participation leads to consistent failures in envisioning and implementing decisions in pursuit of Abuja's urban development

and this has been prioritised as the gap this study sought to address. Some of the advantages of e-backcasting analyses for this study were that:

- The process of strategic planning became easier online as it helped in exploring new solutions to the problems and status quo of the city deliberated upon,

- It helped in deciding on the direction that was most effective as it facilitated communications amongst participants, as the scenarios process helped stakeholders break through communication barriers, through strategic decisions on how current and alternative development paths might affect the future,

- The process also aided brainstorming while trying to reveal possibilities and limitations for change as consensus about different issues, such as opportunities and threats, were reached. It enhanced the credibility of interpretation of the entire exercise particularly with the findings and how it was utilised in presentation

- The analysis also revealed the dynamics of change needed within the Abuja city,

- Through the analysis process, participants were more willing to learn, as it assisted in diversifying the people's long-held opinion and encouraged particularly rethinking towards change on a certain communal way of life, particularly areas for which they have fixed mind plan as the process promoted better handling initiatives for new situations as they arise,

- Finally, one primary reason for choosing to adapt the e-backasting approach as one of the analysis tools is that it aids in exploring, initiating and envisaging sustainable transition (Quist and Vergragt, 2006; Quist, 2007). The technique offered a better tool for determining future outcomes, instead of predicting them by coming up with idealistic visions and a pragmatic approach to achieving the goal (Natural Step, 2009) (see Appendix D).

The study has therefore, appraised the potential for enhanced broad-based participation through e-backcasting based on an online platform, towards generating a desirable future vision for Abuja. Through the same medium, the study carried out an assessment on how the vision could be conceptualised using the recommended interactive tools to guide the execution process that is to enable the pursuit of the desireable future state. The study anticipated that such an

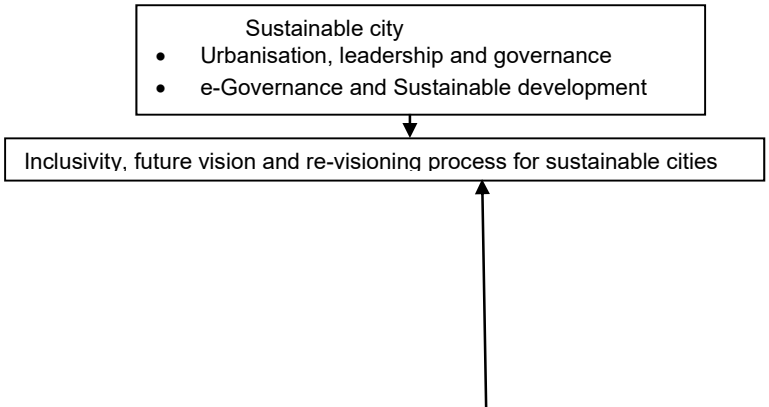
approach would yield insight to guide the inclusive development for Nigerian cities based on a future-to-present visioning and pathway processes.

2.9 Conceptual Framework

The theoretical field of the study comprises the theory while the conceptual framework is the operationalisation of the academic components towards the derivation of findings in response to the research question. Such a framework attempts to connect all aspects of inquiry which includes problem definition, purpose, literature review, methodology, data collection, and analysis. The conceptual framework for the study is in Figure 2.5.

The study context is structured around sustainable city development, especially the Nigerian perspective. It engages other topical issues that are part and parcel of sustainable development such as the inclusivity, governance and the whole dimension of sustainable city transitioning. In the last two decades, city governments, researchers, and planners worldwide have motivated the need for inclusivity through participation in the visioning process of cities as one way of fostering sustainable urban development.

In spite of these debates, Nigeria's cities have remained unplanned and unsustainable, mainly due to lack of citizen inclusion, both in planning as well as in decision-making processes. This status quo is directly related to the system of city planning and administration, which mainly relies on the master plan and forecasting approaches which are said to be rigid, linear and exclusionary in their process and outcomes. The two urban planning approaches have contributed to an escalating backlog in addressing ever-changing urban issues as they evolve over the years. Solving these shortcomings requires that backcasting is prioritised as a strategic planning tool and adapted for integration into an e-backcasting platform outside the e-government platform for the prototype stage. In addressing visioning issues, e-backcasting serves as the primary tool, with Abuja as a case study. Insight is drawn from Curitiba-Brazil as an established city case in sustainable cities practices.



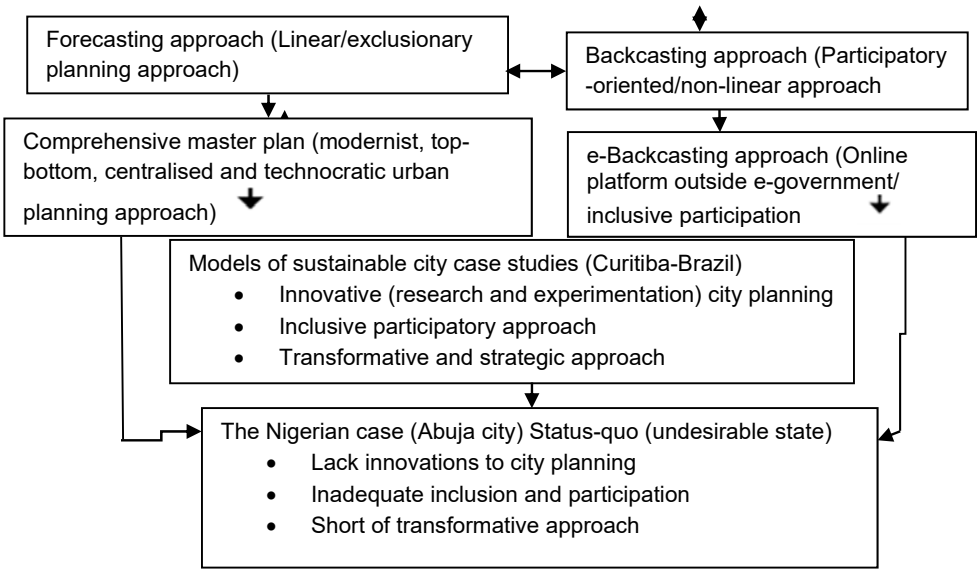


Figure 2.5. Conceptual framework of the study

2.10 Theoretical Fields

In line with the conceptual framework, five theoretical fields have been prioritised and linked to the study concept from insight obtained from literature reviewed (see Table 2.2) and they are discussed in the subsequent sections;

Table 2.2: Concepts linking the theoretical fields

Concept	Theory	Authors
Sustianble city Development	Modenist plan theory, egovernance	Allmendinger, (2017), Motihar, (2015).
Inclusivity	Participatory backcasting approach	Quist and Vergragt (2006); Kok et.al (2011)
Master planning	Modenist planning theory	Watson, (2009), Allmendinger, (2017)
Governance	e-governance	Chun et.al, (2010), Robertson, (2014)
e-backcasting	e-governance	Chun et.al, (2010); Motihar, (2015).

2.10.1 Participation oriented backcasting approach (PBC)

The three core concepts of participatory backcasting as earlier identified by Quist, et.al. (2013) were applied as the reference point and primary guide in the adaptation of the e-backcasting technique for this study. The concepts include the conceptualisation of the desirable futures (also termed the future vision), stakeholder participation and learning by stakeholders (emerges out of the involvement of a wide range of stakeholders and enhances awareness among them). PBC is situated in stakeholder and citizen participation in strategy creation, communal decision-making, sustainable growth, resident or neighbourhood participation and legitimacy. The process of collaboratively creating and appraising

a desirable future vision by interested parties is central to participatory backcasting such that emerging desirable future visions become the co-creation outcomes of the participation. The vision is therefore viewed as constituting the potential to guide and provide re-orientation.

However, it is not entirely ruled out that the co-created visions could also face rivalry from other evolving visions and their devotees, especially from the conservatively alleged opinions sustained by status quo interests and players. The idea of participation strongly stands on the contribution of relevant participants and how interested and prepared they are towards creating alternative future visions. It guides the choice of who to include, subject to how well-defined the problem and the socio-technical system under study is. Most participatory-backcasting studies involve expert stakeholders as opposed to the more desirable broader participation approach piloted and prototyped in this study (Carlsson-Kanyama et.al, 2008; Kok et.al, 2011).

The concept of learning also guided the increase in awareness and changing behaviour amongst participants (Quist and Vergragt, 2006). The learning process for this study, as presented in Chapter 5 and 6, comprised four steps; which are ongoing

- recruitment and participation of a wide range of participants (diversity and numbers), through the instrumentation process and outcomes, knowledge and learning among the participants involved in the future vision were obtained,
- through participants profile the information on extent of inclusivity was obtained,
- the consequences, views and perspectives of participants with regard to performances of the e-backcasting process,
- realising follow-up commitments and participants co-operation.

The process created an avenue for collective agreement and harmonisation of knowledge and opinions among participants, thus amassed the knowledge, beliefs and opinions of other participants. But at some point in the decision-making process there was evidence of harmonisation of knowledge that possibly exhibits a win-win state without necessarily pursuing a compromised agreement. Participants' learning is likely to facilitate the required change on the Abuja-city

challenges as the transformed understanding of participants could catalyse possible innovative solutions and also generate more effective approaches to deal with the challenges.

Altogether these qualities make participatory oriented backcasting an appropriate research technique in articulating a sustainable and desirable future vision for Abuja while investigating the inclusive potential of the approach using participatory e-backcasting in contrast to the conventional practice of engaging expert stakeholders on face-to-face forums. The approach also enabled the test on how broad, bottom-up and inclusive the strategy is in engaging Nigerians within the country or abroad in a collective manner via online platforms, while evaluating willingness to participate; transformed understanding achieved and overall impact on participants.

2.10.2 e-Governance approach

Governance refers to the practice of directing a group of people or society through decisions-making based on sharing, re-structuring and deciding to whom authority is to be delegated (Robertson, 2014). This study is contextualised within the e-governance field as it embeds conventional backcasting within an online platform and tools which were prototyped outside formal government e-space or platforms. It focused on citizen participation and their contribution to views/inputs and feedback towards the sustainable city vision. Such a citizen engagement platform is not just about improving cooperation, but also about empowering the marginalised citizen (Motihar, 2015). Through this avenue, participants are allowed to express themselves freely outside a formal government forum, but with the potential of linking the deliberations to the relevant government platforms. Such an online platform has the advantage of providing clear, transparent, interactive, easy-to-implement and just solutions in the shortest possible timeframe (Stragier, Verdegem, and Verleye, 2010). Such an application is likely to enhance efficient and inclusive sharing of viewpoints, thus facilitating interactive communication with the advantage of immediate input and feedback towards the sustainable city vision and implementation pathways for Abuja.

2.10.3 Modernist theory in urban planning

The modernist approach in urban planning assumes that every activity in the city can be easily distinguished and separately planned for. The four principal human activities are living, working, leisure (enjoying free time) and related mobility. The modernist model has been the dominant tradition, shaping planning practices in the developed nations and was later transferred to developing countries (Watson 2009, 2014). This way of thinking achieved resounding success at a worldwide level until the moment at which it was clear that the cities planned following these rules do not take into consideration the real needs of the broadest range of citizens. This leads to several limitations in the sustainability and growth of the resultant cities. Although modernist-planning efforts in Africa are increasingly viewed with scepticism, planning efforts continue to utilise modernist assumptions despite its numerous challenges (Myers, 2011; Benna and Benna, 2017). More specifically it has certainly been close-to-impossible to apply modernist theory through master-planning for Abuja city. The city is thus becoming overwhelmed by population growth and backlogs in infrastructure and services (especially because the master plans and other strategies employed were designed and implemented by outside planning experts with hardly any participation of the local communities or other stakeholders.

2.11 Conclusion

Insights from the reviewed studies reveal that sustainability requires good governance and strong leadership that catalysed both top-bottom and bottom-up (inclusive) participation at all levels in ways that advocate change and provide support to the core government institutions. The appraisal offered an understanding of the contested concept of the sustainable city transition across the critical stages of visioning, decision-making, implementation and pathway correction stages towards the vision. It also expands on the integration of ‘sustainable development' with governance approaches as it relates to the visioning of a new capital city which creates different interests and perceptions in theoretical and practical terms. The appraisal of related studies has established that due to the dynamic nature and complexity of cities, the limitation of conventional approach to city planning has constrained the opportunity of effectively managing the growth of most cities in Nigeria and especially Abuja, which started off as a new city. The appraisal further identifies the current urban

developmental challenges which undermine the opportunities and positive impacts that sustainable development, urban governance and informed/creative leadership and inclusive vision offer to city dwellers. The significance of adapting e-backcasting methods aimed at facilitating both top-bottom and bottom-up participation and knowledge of the broad spectrum of stakeholders within the re-visioning process for Abuja city vision with emphasis on the manner in which sustainability can be pursued and achieved. The insights thus guided the study towards adaptation of participatory oriented backcasting into e-backcasting as a platform and process initially outside e-government platforms.

An e-backcasting approach was conceptualised from the integration of an interactive public engagement exercise hosted within online and internet platforms (viewed as a complementary platform to e-governance) through media such as Web 2.0 and ICT tools. Web 2.0 technologies were prioritised as ideal for online data tools for this study. The social-media networking tools have for long promised the potential for public participation in sustainability policy development because of the broad uptake they enjoy, their interactive nature and their low financial cost compared to conventional methods. Engaging an e-backcasting approach for this qualitative inquiry was therefore guided by the following key expectations;

- Complex, detailed understanding of ‘collective desirable vision' can be obtained, which can only be established by interacting directly with the mix of participants through bottom-up and top-bottom process which allows the actors to express themselves, irrespective of what we expected to find or what has been read in the literature
- It empowers individuals to share their stories, hear their voices and minimise the power relationship that often exists between researchers and participants in a study because the participants collaborate directly in reviewing data as they are captured and analysed in the course of the study
- The approach enhances the understanding of the context or setting which informs participant contribution to the decision-making process
- Backcasting in city planning in total is very elastic and thus runs counter to the conventional master planning approach, as stated earlier. Backcasting is not all about plans. It also questions how well a programme represents a city vision. What matters the most is what the people want or aspire to for Nigeria rather than what Nigeria aspires to for the people. It is worth noting that the argument

here lays emphasis on the need to engage appropriate planning tools towards attaining a future city vision for meaningful development and why this presents so many problems, not only in Nigeria, but Africa at large, thus posing a significant challenge for city administrators. On the other hand, there are no generally accepted concepts set aside as the best criteria for achieving effective and sustainable city development

In concise summary of the insight, the approach must be inclusive in the context of the envisaged development based on effective institutions and local engagement; for the benefit of ‘all' rather than for a few to the detriment of the majority. Given this position, arguments within this chapter reveal a critical knowledge gap in general, but more specifically within Abuja's city vision and development context when appraised through the concept of a sustainable city, inclusive governance and backcasting approach. The gap underscores the need to adapt urban development approach and practices for Abuja city as a guided by the theoretical and conceptual framework of the study and as substantiated in Chapters 4, 5 and 6.

3 CHAPTER THREE: RESEARCH APPROACH AND OVERALL METHOD

3.1 Introduction

This chapter presents the methodological approach of the study and therefore covers issues around the case study location, research strategy, research method, sample of participants at different stages and methods of data collection and analysis. The process and tools of data collection and analyses are summarised in Table 3.1. Data gathering procedures and ethical considerations are also presented. The study applied an iterative process where theory was used to specify initial constructs which guided the exploration of the empirical case and in turn, provided the basis for theoretical redefinition and reiteration (Bhattacherjee, 2012; Gray, 2013). Given the research questions and objectives of the study, a qualitative approach anchored on a prototyped action-research and case study strategy was prioritised. The four key issues for potential appraisal are:

- Sustainable city vision issues deliberated and refined
- Extent of participation/inclusivity accessed
- Diversity of online tools/media
- Time-duration of each prototype stage

The study aimed at appraising the adaptability potential of backcasting to participation-oriented e-backcasting, based on an interactive online platform with social-media tools to facilitate and enhance inclusiveness and top-bottom and bottom-up stakeholder participation towards a desirable future city vision for Abuja. In this regard, four iterative prototypes stages (with modifications across core issues of the prototype iteration levels) were implemented as summarised in Figures 3.4, which also guides the structure of this Chapter.

3.2 Research Design

A research design is the strategy or strategies of enquiry coupled with specific methods of data collection, analysis, and interpretation used in turning research questions into substantiated resolution (see Table 3.1 and Figure 3.1). The model used in research must consider the purpose of the study, the theory guiding it, the method and the sampling strategy (Cooper et.al, 2003; Bhattacherjee, 2012;

Robson and McCartan, 2016). The research design process for this study was structured in five stages constitutes of the following:

- review and background study
- learning from case study (implementation/participatory approach applied)
- development of the e-backcasting procedures
- application of the e-backcasting procedures
- Learning from applied approach in order to evaluate the adaptation-potential of e-backcasting in relation to Abuja city case study. Figure 3.1 presents the key stages and Table 3.1 shows the various approach/stages towards in answering each research sub-questions.

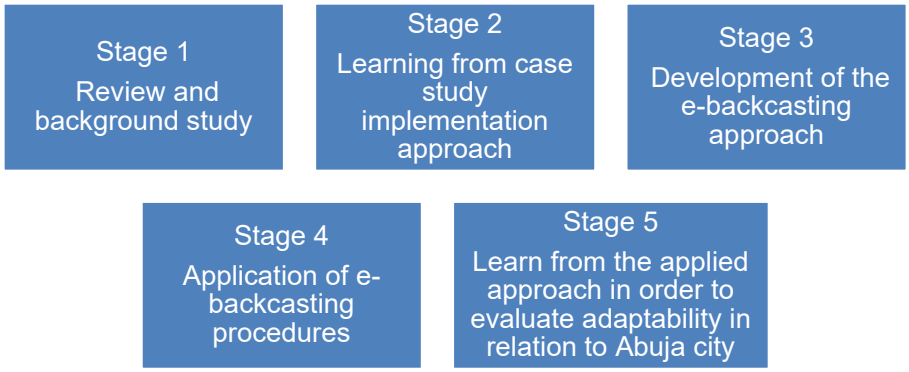


Figure 3.1 Study design and structure

As noted in Figure 3.1, one of the main purposes of the study was to explore the Abuja case study by substantiating the future from the view-point of various studies reviewed, with the intention of first determining the magnitude or extent of the inclusiveness and consistent failure in previous policy and vision implementations.

The first stage is expected to detect the study problems and develop the study background in order to establish the research aim and objectives in view as elaborated in Chapters 1 and 2. Second, it was necessary to improve on the theoretical and conceptual framework of the study (Creswell, 2007; Creswell and Clark, 2011). This stage involved exploring the need for inclusiveness in sustaining city planning and adopting a mechanism for conceptualising and developing the city vision and planning problems in Abuja. The first and second objectives are addressed in Chapter 4, based on secondary data obtained from existing sources covering two broad areas as follows:

The first broad area deals with challenge of sustainable city transition and goals (at global level/Nigerian context).

The key components involved accessing sources of secondary data on visioning, governance and sustainable development concept, new city concepts and modernist approach, linear rational model of urban planning with focus on comprehensive master planning in relation to forecasting and backcasting.

The second broad area covered data sources on sustainable city models and inclusivity in the city visioning process. This component involved accessing data on the fundamentals of city visioning, envisioning process, planning and implementation. This was achieved through secondary data on Curitiba and Abuja city (see Sections 3.3.4, 3.5.1 and Chapters 4). The data also allowed for the analysis of the degree of participation in decision-making processes in relation to inclusive participation in the city vision and planning, as well as the hierarchical nesting of various macro-to-micro-visions essential for guiding sustainable city experiences and outcomes.

The second stage focused on developing the most appropriate methodological approach for the study by adopting the mechanisms of e-backcasting in order to pursue the study objectives (see Appendix B, C and Chapter 5). This stage also allowed the identification of the appropriate research methods to substantiate the research questions and the techniques to be used for the collection and analysis of the data especially through identifying variables that make up the inclusive sustainable city development (see Table 3.1 and Appendix D).

Table 3.1: Methodological framework of the study in relation to the research design and sub-questions

Key Question: What is the adaptability-potential of participatory-oriented backcasting to e-backcasting process aimed at facilitating inclusive interactions towards city vision for Abuja				Data collection method & Chapters (see key below)						Data processing and analysis	Derivation of findings	Consolidation of overall findings and conclusion.
Sub-question	Data used	Attributes measured	Source of Data	1	2	3	4	5	6			
1) What are the current approaches to sustainable city development that could enhance inclusive/ participation towards a desired vision for Abuja	Secondary information on Curitiba were drawn from about 17 reviewed articles on: • Basics of the city's visions and envisioning process • Principle of participation and inclusion in plans and decision-making • Sustainable city models and initiatives applied	• Knowledge-based planning process (extent of dialogue and awareness, communication on future concerns, wide stakeholders and public participation, design process) • Participants' profile(nationality,gender, equality, residency) • Common understanding (mutual enabling, trust, integrity, accountability) • Inclusive key management principle (work life balance, unity in views,	• Sustainable development, Environmental studies and management technological Forecasting and Social Change, Sage • Conference proceedings • University of Wits Library • Amazon book • Google books • Routledge • Access Journal Secondary tools: • internet search • Books • Journal • Articles	1		3			4	• Thematic analysis of data based on each case study	Description of findings under key themes; • Sustainability and impacts on visions as observed from literature sought. • Extent of participation and Inclusiveness in decision-making at the visioning, planning & implementation stages in the development process of the city • Connect data, study problem ,conceptual framework to give findings meaning	After processing the information, it was analysed and discussed as follows; • Maps, tables, graphs and photographs were used to provide visual display to findings • Link findings to the study purpose and objective one. • Confirm or reject and conclude based on findings

		governance, city concerns)										
*Keys for data collection method & chapters: 1. Archival/secondary source of data 2. Open-ended questions 3. Case study 4. e-backcasting 5. Action research 6. Chapters												
Key Question: What is the adaptability-potential of participatory-oriented backcasting to e-backcasting process aimed at facilitating inclusive interactions towards city vision for Abuja				Data collection method & Chapters (see key below)						Data processing and analysis	Derivation of findings	Consolidation of overall findings and conclusion.
Sub-question	Data used	Attributes measured	Source of data	1	2	3	4	5	6			
2). What has been the level of participation and inclusiveness in the methodological approaches used in implementation Abuja city visions and plans to date?	Secondary information on Abuja city vision and extent of inclusivity were drawn from 7 archival and 27 supporting (see appendix A): • Abuja master plan • Development control • Area councils/ STDA structure • Population census from (1991, 2006 and 2009 NPC Survey, • Trends in ministerial 1991 to 2016 • The 1999 constitution.	• Context understanding of Abuja vision, historical account of city and national significance of vision • Adequacy of participation and Inclusivity of the scope of implementation and specifics of reforms applied (resettlement policy, land swap and re-allocation policy,integration policies, centurion plan, compensation). • Procedural validity of decision-making process, citizens consultation, Inclusiveness and equitable impact of outcome of plans on social	• Secondary sources: • Federal Capital Development Authority (Archives) (FCDA), • Abuja administrative web site • Secondary tools: • Archival documents • Scanning of documents • Online sources •	1		3			4	• Thematic analysis and coding of data based on each case study	• Describe the Abuja case using same method of analysis as in sub-question one above but specific to sub-question two based on its context settings and key themes • Link findings in sub-question two with the findings of sub- question one and bring out their connecting and divergent points. • Connect findings to conceptual framework	After processing, analysing and describing the information; • Link findings to study aim, objective two • Conclude findings based on sustainable principles and lessons learned from Curitiba and the Nigerian case • Use knowledge gained to offer strategic guide towards bettering Nigerian cities through Abuja. • The findings at this stage are used to argue for or against the adoption of proposed e-

	• The FCDA administrative structure	transformation of residents/city										backcasting approach

*Keys for data collection method & chapters: 1. Archival/secondary source of data 2. Open-ended questions 3. Case study 4. e-backcasting 5. Action research 6. Chapters

Key Question: What is the adaptability-potential of participatory-oriented backcasting to e-backcasting process aimed at facilitating inclusive interactions towards city vision for Abuja				Data collection method & Chapters (see key below)						Data processing and analysis	Derivation of findings	Consolidation of overall findings and conclusion.
Sub-question	Data used	Attributes measured	Source of Data	1	2	3	4	5	6			
3) To what extent can the adaptation of backcasting to an online e-backcasting platform enhance such inclusiveness and participation for Abuja?	The sub-question addresses the extent of inclusivity and participation. • Data on participants was obtained through interaction and opinions through the re-visioning process. • The level of inclusiveness was determined through participants demographic factors and observation made	Data was generated through the empirical process using • Four strategic visioning steps for ease of online administration using backcasting analysis with specific strategies that define the desired vision (see Appendix D). • Data on inclusivity of participation and extent of involvement of participants was sought using demographic factor, recruitment and	The primary source: • e-Backcasting approach Three sets of tools used were : • Combined participatory backcasting approach with complementary tools such as scenario plan, SWOT and brainstorming • Social media (Facebook, blog, e-mails, WhatsApp, mobile sim networks • Software's like google image and vector.com pictures.		2	3	4	5	5 & 6	• Analyse data by categorising into key themes • Carry out the e-backcasting approach to determine the extent of participation • Use recruitment ,demographic factors to determine level of inclusiveness	• Describe findings under the extent of participation issues and inclusivity of the approach alongside insights gained towards the desired future vision for Abuja. • The ability of the approach in answering sub-questions three. • How the different findings from question one and two contradict or complement	• Linked findings from the sub-question and objectives to explore key purpose, theory and conceptualise framework of the study • Finding helped in understanding the inclusive potential of e-backcasting mechanism • Triangulate methods to confirm findings, weaknesses, and strength. • Conclude based on how findings link aim, objective hypotheses

	throughout the prototyping process	deliberative process									question three • Limitation of approach and how they affect finding	

*Keys for data collection method & chapters: 1. Archival/secondary source of data 2. Open-ended questions 3. Case study 4. e-backcasting 5. Action research 6. Chapters

Key Question: What is the adaptability-potential of participatory-oriented backcasting to e-backcasting process aimed at facilitating inclusive interactions towards city vision for Abuja				Data collection method & Chapters (see key below)						Data processing and analysis	Derivation of findings	Consolidation of overall findings and conclusion.
Sub-question	Data used	Attributes measured	Source of Data	1	2	3	4	5	6			
4) What extent could the enhanced inclusiveness impact sense of ownership of the vision among participants during e-backcasting application?	• Assessment of participant learning to ascertain knowledge acquired, gaps identified and usefulness of the knowledge for daily living	Assess impact on participants through • Knowledge gained, • Consequences • Views/perspectives of participants • Participants enlightenment • Satisfaction/value of ideas obtained	• Open-ended questions Open-ended questions were administered via online platforms used as data collection tools (see Appendix C)		2	3	4		6	• Organised and analyse information based on each open-ended question and the interactive process	• Discuss findings by comparing similarities and differences in ideas from each open-ended question.	• Conclude based on participants evaluation of the impact and procedures engaged
Working Hypothesis: The weakening effect of linear/rigid city planning processes and their related exclusion of stakeholders in decision-making weaken the chances of achieving sustainable city goals especially within developing countries now experiencing enormous backlog in urban infrastructure, services and management capacity. The challenge calls for re-imagining city visioning/planning process towards ensuring support using ICT tools through the application of e-backcasting				1	2	3	4	5	1, 2, 3, 4, 5 & 6	•	•	• Consolidate findings on adaptability potential of e-backcasting to city visioning

*Keys for data collection method & chapters: 1. Archival/secondary source of data 2. Open-ended questions 3. Case study 4. e-backcasting 5. Action research 6. Chapters

This also involved identifying and describing the visions, policies and programmes associated with these variables and assessing their level of inclusiveness. These are derived from synthesising from the themes emerging from the literature review and inputs obtained from the interactive sessions amongst participants. The third research objective was addressed through analysis of primary data from social media platforms (WhatsApp, Facebook and so on), emails, mobile networks, open-ended questions and archival/secondary sources.

The third stage involved applying the technique and procedures (as elaborated in Sections 3.3.2 and 3.4) of first converting the social variables and themes into a useful form, based on interactive questions that could be briefly answerable. The e-backcasting procedure involved the generating and managing of the four on-line tools for the period of 10 months, based on specific strategies such as SWOT analysis, scenario planning, and the e-backcasting technique developed to aid both recruitment and interaction via online sessions. This stage not only focused on adapting the two mechanisms, but primarily on developing a procedure that encouraged inclusive and collective planning towards city transitioning. The stage addressed the third objective and sub-question respectively.

These procedures that guided and facilitated the step-by-step backcasting technique towards the desirable future vision for Abuja entailed the following components:

- recruiting for consenting-participants to deal with the current state of the city with the intention of generating deliberate problem orientations (see Appendix C)
- guiding participants to collectively converge towards one future vision out of the many possible visions for Abuja as well as feasible pathways towards accomplishing and sustaining the city vision (see Appendix D)
- consideration of ethics, sampling size, sampling technique and qualitative tools of analysis (See Appendix E and Section 3.5)

The 4th and 5th stages addressed the fourth sub-question by assessing how prototyped e-backcasting process or experience based on participants perception of their participation at individual and collective levels. Thereafter, the results obtained from the diverse data capture tools or processes were subsequently

integrated towards findings in order to address the main objective of the research as shown in Table 3.1.

These five broad areas closely align with the theoretical fields of ‘e-governance’, ‘modernist theory’ and ‘backcasting techniques’. The combination of these broad areas also led to the development of the conceptual framework (see Figure 2.3) which further demonstrates the objective of the study by establishing the link between sustainable city development, visioning, participation and inclusivity in city planning. In summary, the research design conceptualised and expanded on a strong connection between the objectives, key and sub-questions and methods adapted to in order to meet the aim of the study as shown in Table 3.1.

3.3 Research Strategy

Besides data captured through the online platform, a multi-method research strategy was adopted in order to substantiate the sub-questions of the study. The approach entailed a combination of the qualitative strategy of case study (with methods such as the use of a prototyped action research, archival documents appraisal and administration of open-ended questions. Each strategy was used with its associated analysis procedure (see appendixes A, B, C and D). The use of multi-method approach is that diverse data types are converged through triangulation across the methods which helped in mitigating the potential weaknesses of each data collection method in isolation, thus enhancing the authenticity of the research findings. The opportunity for triangulation is the most commonly cited motivation of why mixed methods are adopted for a given study (Gray, 2013).

3.3.1 Archival documents appraisal

The appraisal of archival documents aimed for data that would facilitates for a clear understanding of the past and present state of Abuja’s urban development approaches. Documents were appraised with regard to sustainable city development, the desirability of the vision and inclusivity criteria. The archival documents’ constituted of primary text (not produced for research) comprising government documentation, newspaper, memos and letters, among other sources. Specifically for Chapter 4, data were mainly sourced from seven archival documents, amongst others, as summarised in Table 3.1 and over 27 (supporting desktop internet search) books, articles and journal publications (see Appendix

A1). The archival documents were obtained from FCDA Archives in Abuja. For Curitiba city as the precedent, over 17 secondary documents were sourced to evaluate and support information obtained with regard to the city's sustainable state (see Table 3.1 and Appendix B2).

Purposive sampling of secondary data sources was employed in selection of the prioritized out of the large pool of materials that were available and relevant to the study (Suri, 2011). All of these qualitative data were subjected to analyses towards substantiating sub-questions 1 and 2.

3.3.2 Open-ended question

Following the conventional backcasting method, the study generated information over the status quo of Abuja in order to project the likely or probable future, given the current and historical dynamics of the city. The process reiteratively employed a series of carefully prepared open-ended questions and applied on the feedback for subsequent iterations and thus helping to build consensus among participants. The questions were structured into five categories of pre-sets questions. The structure includes the scoping stage, problem orientation of Abuja's current state, conceptualising the target vision, the e-backcasting application, participants' demographic and inclusive information and assessment of the impact and learning amongst participants (see Appendix B). The categories were further broken down into the time frame, current state, future ideal states, actions, pointers, risks and opportunities as commonly used during a conventional backcasting exercise as shown in Table 3.3, the developmental tool table.

In planning and facilitating the prototyping of e-backcasting (see the process in Chapter 5) for developing the future vision for Abuja city was based on about 100 open-ended questions adopted from Milan (2008) and Kok et.al, (2011) (see Table 3.2 and Appendix C). The questions aimed to gain data towards addressing sub-questions 3 and 4. Approximately 90 questions were first tested at the piloting stage through the email platform and were later reduced to 79 for Facebook and then 36 and 66 for the blog and WhatsApp respectively (see Table 3.2). For WhatsApp, out of 66 questions, five were geared towards scoping and introduction, 16 were used to guide the assessment of the learning and impact among participants while 11 questions focused on demographic data (see Table 3.2). The remaining questions went into the e-backcasting. On the average, a minimum of 6

open questions were attached to each write-up per post. The questions were carefully adapted to mirror the aim, objectives, and working hypothesis of the study. In order to encourage high feedback speed, in subsequent iterations, the questions were redesigned to contain straightforward, simple, clear language and readily answerable questions

Table 3.2: Summary of backcasting-guided steps and number of questions by tool category

Steps	Purpose	Number of questions applied in each platform			
		Email	Facebook	Blog	WhatsApp
1: Introduction and scoping	To prepare participants and quiz their knowledge on Abuja vision and sustainable city development.	26	10	05	05
2: Problem orientation	To obtain information on the strength, weaknesses, threats and opportunities through SWOT analysis of problem orientation	15	12	05	10
3: Define/establish the target vision	To create scenarios, selecting one as the vision that must be engaged with using scenario planning	15	15	05	07
4:e-Backcasting	Use e-backcasting analysis and carry out strategic planning for the selected vision.	16	11	04	08
5: Participants' demographic /inclusive information	To carry out demographic inquiry and assess the level of inclusivity of participation. Evaluation comes up at any time in between the steps	20	12	11	11
6: Assessment of the e-backcasting on Learning/impact by participants.	Exposure of participants encounter during the exercise and impact on future planning for Abuja city To ascertain if the basics of the method applied are understood. The selected questions act as debriefing on e-backcasting	22	19	06	16
Total		90	79	36	66

In doing this, the researcher make certain that the concluding questions were direct, specific and unambiguous. The questions facilitated data collection through reflective responses during on-line interaction and brainstorming through the range of views, discussions towards determining the level of inclusivity among participants. They also helped in assessing the extent to which the approach impacted participants' knowledge as they engaged in the various activities towards envisioning a desirable collective future. The questions made it a lot easier for participants to exercise their freedom of expression while also guiding participant thoughts at various stages of data collection process, even though most of the time

their opinions failed to align with observable facts. Data obtained were analysed and discussed according to themes.

To some extent, the use of open ended question as a research strategy was to mitigate bias, to guide the orderly representation of findings and validate the iterations processes. The expected challenge with using this type of instrument for data collection principally related to the limitations of time and levels of effort required for recruitment, data collection, and collation. Another major challenge was the process of deciding how inputs and ideas could be collated such that success and failure were measured. At the same time monitoring impacts of the methodological approach on participants while also keeping track of the overall strategy of the study. The questions administered for collecting the relevant information are as shown in Table 3.2.

3.3.3 Action research strategy

Action research is a narrative-based approach which entails enquiry towards insight and understanding based on intervention on an undesirable status quo situation with an explicitly hypothesised mechanism of transforming the status-quo to a more desirable state (McNiff, 2013). It allows for collaborative inquiry and is mainly aimed at managing transformational change through incorporating feedback from observations for subsequent iterations of the intervention (Kemmis and McTaggart, 2005; Kemmis et.al, 2013). This study applied the strategy (as presented in Chapter 5) towards embedding a long-term perspective for sustainable urban development through engaging backcasting as a collaborative social learning process (see Table 3. 1 and Figure 3.2).

As such, the transformation envisaged from the study process is not tied solely to meeting the re-envisioning process, but also to transforming a stubbornly entrenched but so-far unsuccessful status quo practice in urban development and management of Abuja. The approach was therefore geared towards creating options based on a prototyping process rather than at full-scale city plan but with the prospect of scaling-up through the Abuja City Authority if the outcomes are convincing (see conclusion and recommendation in Chapter 6).

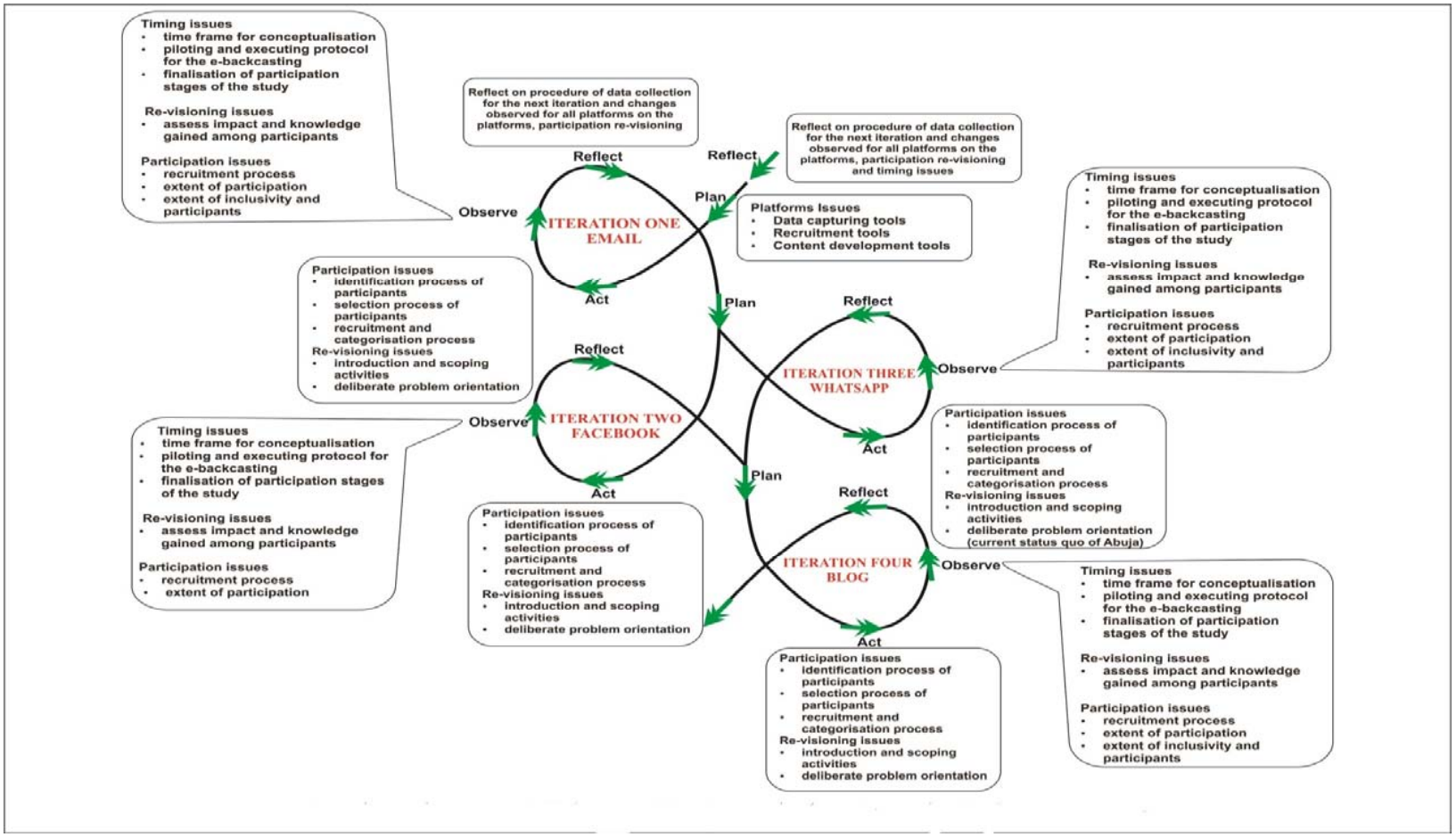


Figure 3.2: Action research cycles showing e-backcasting iterations stages

3.3.4 Case study strategy

Yin (2013) defines case study as an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident or easy to define. Such an enquiry also allows for the use of multiple data sources such as action-research approach, e-backcasting, archival document enquiry and the use of open-ended questions. The essence of these data sources is to undertake the investigation entailed for Abuja city visioning process, particularly with regards to the extent of inclusiveness within a city planning process. The enquiry process also aids monitoring for replication potential of the participatory e-backcasting approach with regards to scale-up by city authority. Whereas Abuja serves as the empirical context case study (see section 1.8.2 for further information). Curitiba-Brazil has also been purposefully prioritised as a case study to serve as successful precedent to learn from (see Section 1.8.1 for details). The criteria for the choice of Curitiba as a precedent case study were mainly as follows;

- Readily available readings to serve as secondary sources (this emerged from the literature review state of the study)
- Extent of its radical turn-around strategies which reflected explicit backcasting processes. Curitiba in the past experienced related chaotic down town structure and traffic problems like those encountered today in Abuja. With Curitiba demonstration of the necessary transformation into a global referenced city, it can be carried out in other cities of the emerging world cities assuming that the necessary administrative willpower can be mustered.
- Most of the later stages of its visioning and implementation process occurred around the same time horizon as those of the visioning and implementations of Abuja as a new city
- Curitiba's, plans relatively aligned in scale with the aspirations of Abuja over the short period of 25 years.
- Finally, available secondary data sources (also identified significant contrast in the applicability of backcasting to the approach in future city vision, sustainable city development, inclusivity in decision-making, innovations and consistency in city-development processes across the two cities (see Figure 3.3).

In contrast, the choice of Abuja as the principal case study was mainly triggered by the circumstances that led to the creation of the capital city (see Section 2.6.1 and Figure 3.7) and by the need to understand why its visions and planning policies

have continually failed, especially when viewed within the post-colonial era in Nigeria.

The key differences were between Curitiba's sustainable city approach and the Abuja city case context were appraised and applied in subsequent stages of the study (see summary in Section 4.4). Even though there was no need to make parallel comparisons between the two cities given their diverse contextual factors and drivers, the influence of their different settings in relation to their outcomes was used as a learning strategy towards appraising the level of integration and inclusivity in their city visioning and implementation processes. The emphasis in this approach was to use the insight gained from the good practice precedents (Curitiba) to offer a strategic framework for the appraisal of Abuja-status quo as well as its transitioning pathways. The focus of the selection criteria mentioned above was therefore to facilitate insight and understanding of city visions, sustainability, inclusive participation and development realities from secondary data sources.

The good practice principles and criteria on sustainable, inclusive and participatory approach through visioning process, as demonstrated in Figure 3.3 has been extensively analysed in Chapter 4. The analysis helped to clarity the research issues as well as the research objectives for sub-questions 1 and 2 based on information obtained from the contrasting contexts between the Curitiba and the Abuja city case contexts.

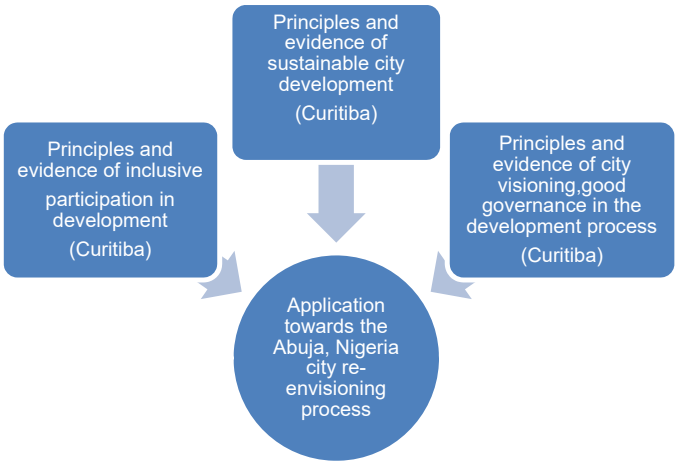


Figure 3.3: Criteria for the initial appraisal of the two case-studies.

3.4 Procedure of Data Collection using Prototype Action Research based e-Backcasting Approach as Applied in the Study

The practical application of e-backcasting began with the planning and development of the tools for undertaking the various tasks and recruitment process. These processes started four months before initial implementation based on the four prototype iteration stages 1, 2, 3 and 4. The four levels of iteration were designed and applied using emails as iteration 1, Facebook for iteration 2, WhatsApp for iteration 3 and blog for iteration 4. Each of the iterations entailed a modification across four critical subjects of the study which are; participation, platforms engaged, re-visioning exercise and timing of various tasks employed as presented in Figure 3.3 (see Chapter 5 and Appendices B, C, D, E and F). The four stages were applied to guide data collection, collation and analyses, incorporating feedback from the review process in order to improve on the understanding and data scope of the study. The prototyping process was conducted on-line, while secondary data were obtained through a parallel process from archival documents and journal articles for Chapter 4. The procedures employed for each critical issue and subject is elaborated in the following sub-sections.

3.4.1 Platform issues

Platform issue and subject data were derived from multiple channels of data collection instruments and diversity of online media platforms based on three separate tools. They include; data capturing, recruitment and content development tools. Data capturing tools engaged practically four socio-media tools in data collection and iterations such as WhatsApp, e-mail, Facebook and blog (see Figure 3.3). Scenario planning and SWOT analyses were also used for qualitative data analyses. The second category comprised tools employed for recruitment and networking, such as LinkedIn and Mobile phone networks such as MTN, GLO, Airtel, and Etisalat. The third group are pictures, images and videos that aid content development obtained from software such as vector.com, google.com and youtube.com. They are embedded in all content, written and posted to each online platform or chats in order to facilitate the e-backcasting sessions and also enhance participants' understanding of the topical issues. YouTube.com was used as a multi-media tool in sharing contents by uploading URL videos of not more than 2

to 6 minutes on varying topical issues, making it easier to pass across ideas and information via video to participants. It had the advantage and ability to communicate and engages people due to the fact that it is cost effective, accessible for those enjoying high speed internet access. This software's aided the ease of applying the e-backcasting sessions and facilitating participants' understanding of topical issues. The procedure for collecting and displaying picture contents using vector.com and google.com software was through downloads of free internet images. This software's was used to give visual expressions to words at every stage of the e-backcasting exercise. The key challenge with using this free software's is that accurate photos were difficult to obtain, thus limiting access to the right images needed. To gain access to quality content or visuals one was required to pay to maintain an account with the web designer and owners of such intellectual property. Figure 3.4 below shows a collage of some of the images freely accessed and used in the prototyping process. Table 3.3 shows when, why and how each of the three platforms was applied in the prototyping process of the study.

The study adopted the use of these interactive web instruments for data collection purpose (as elaborated in a step-by-step process in Section 3.4.4) given the advantages that they provide the ease and flexibility of usage and regulation of participation and control of responses. These advantages significantly influenced the choice and prioritisation of the most appropriate platforms for the study.



Figure 3.4: Collage of images freely accessed and used in prototyping process
Source: google.com/vector.com

Table 3.3: When, why and how each content development tools was applied

When applied	Why they were applied	How they were applied	Total content used		
			Google image	Vector image	YouTube videos
1: Introduction and scoping	To prepare participants by testing their knowledge on Abuja vision and sustainable city development.	• Group creation • Introduced myself • Briefs on the essence of why Abuja • Rules guiding participation and how to get involved • Why sustainable city development 1, 2 and 3	10	08	02
2: Problem orientation	To deliberate on the present state of Abuja SWOT analysis	• Achieving sustainable development through good city administrative practices • The need for enhancing participation and decision-making • Lessons learned from Curitiba, a sustainable world city • Abuja Urban Form and quality of the built environment • Abuja Environment and environmental conservation • Socio-economic well-being of Abuja residents	06	10	02
3: Define/ establish the target vision	Create 4 alternative scenarios for Abuja and select one vision that must be engaged with using scenario planning	• Creating sustainable inclusive vision for Abuja: • Could long-term city visioning and strategic planning tools like backcasting reinvigorate sustainable city planning and development for Abuja city • Creation of scenarios and stream down to one vision.	07	15	03
4: Re-visioning	Use e-backcasting analysis to carry out strategic planning for the selected vision.	• Selected a key timeline and five mid-term lines • Developed strategies towards achieving target vision • Key stakeholder	07	11	01
Total		23 posts	30	44	08

The tools helped to gain multi-perspectives and more precious insight into the research phenomenon and behavioural pattern of each platform used, which indeed was not void of challenges, sharp point, and successes (see Figure 3.5 and Table 3.4). Data from the four iterations were then analysed to appraise the impact on participants and level of inclusiveness while testing the inclusive potential and adaptability of e-backcasting towards sustainable city vision processes.

Table 3.4: Summary of tools, their respective purpose and timeline

Paltforms/software's	Purpose	Start date	End date	Duration/weeks
WordPress blog	Interaction and data collection	1st January 2017	30th April 2017	16
WhatsApp	Data collection, interaction, recruitment and networking	28th February 2017	30th June 2017	17
Facebook	Data collection, interaction, recruitment and networking	1st November 2016	30thJanuary 2017	12
LinkedIn	Recruitment of participants	1st November 2016	30th April 2017	24
email (piloting)	Data collection, interaction, recruitment and networking	1st September 2016	30th October 2017	8
Mobile networks	Recruitment of participants	1st November 2016	30th April 2017	24
Vector.com and google.com.	Visual expressions, content development, free internet images	1st October 2016-	30th May 2017	34
Scenario planning and SWOT analysis	Data analysis	1st October 2016-	30th May 2017	Duration of exercise
Total				117

For Iteration 1, many reason motivated for the use of email in the piloting stage of this study. The cost of sending an email is much less expensive than sending postal mail, making calls, telex or telegrams. The rate of delivery is much faster with emails than most other alternatives. Unlike the telephone or verbal meetings, email by its nature automatically creates a detailed written record.

Studies have shown that Nigerian online community ranked high in Africa in the usage of email for their everyday communication needs (Internet World Stat. 2017; Wilson, 2018). Because of the wide use of email on smartphones, it enabled ease of users checking their email while on-the-go and arrival of new messages alerted to the user. The ease of access gave participants the ability to check email and write messages throughout the day, which helped in the initial pilot stage to obtain feedback regarding the adequacy of the open-ended questions and the online process

Following the first pilot stage, findings obtained were subjected to respondents' review where some insightful feedback was provided to improve the research rigour and determine the minimum duration required for participants to respond to topical issues deliberated. Respondents suggested that long, unclear and unfamiliar questions should be adjusted while some of the topics for deliberation should be orderly arranged. This made it faster to spread awareness of the study and developments on issues as they were reflected upon.

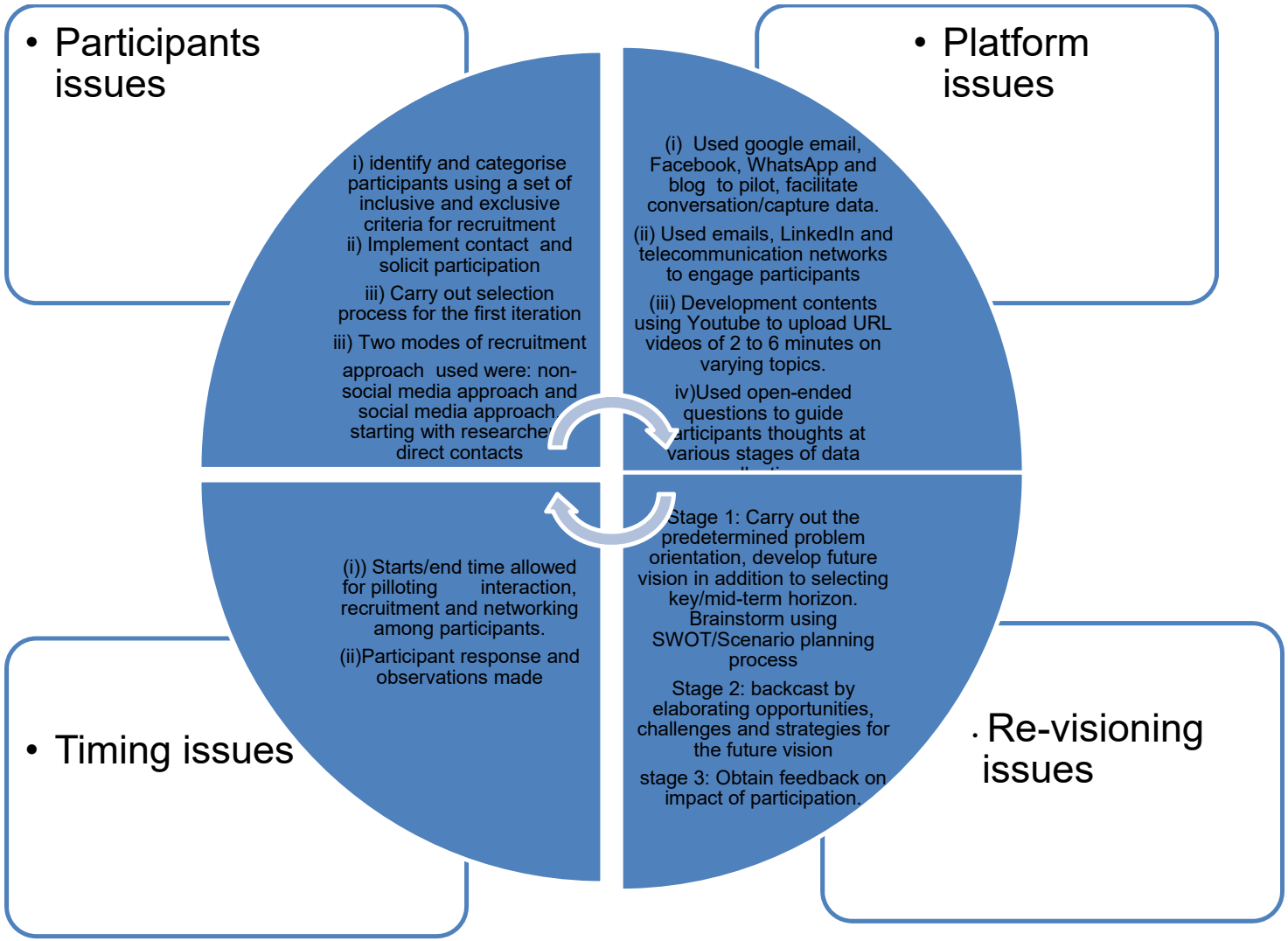


Figure 3.5: Showing Prototype iterations stages applied in iterations 1 to 4

The pilot study also enabled a review of the time it took participants to answer accompanying questions, invariably reducing the time spent for each set of questions from 20 minutes to five minutes, particularly in the sections where a range of five to 16 questions were sent as accompaniment. The subsequent three sessions, iteration 2, 3 and 4 involved re-strategising in cases where changes were needed, using the same method to reflect and iterate where necessary (see Figure 3.5).

For Iteration 2, Facebook platform was used primarily as a mobile photo app platform and a formal learning platform for participants sharing of opinions, insights, experiences and their perspectives with one another. The advantage of using Facebook is that the content and usually the functionality is manned and regulated by the user community itself and not the provider of the tool or a third-party institution. This ability for participants-community to control it-self explains why Facebook was used in this research for the three most popular primary uses such as networking, facilitation of connections between participants, communication and soliciting participation (see Table 3.4) (Gachago and Ivala, 2012; Nwokeafor, 2015).

For iteration 3, WordPress blog or web blog was engaged in the third iteration because of its ability to act as an unedited published voice of the people, as it sometimes functions as an online journal (Rettberg, 2008; Gachago and Ivala, 2012; Fakude, 2014). More so it has the ability to draw groups, academics and students together in accessing free academic materials, publishing and offering feedback, thus not only enriching their learning experience, but also facilitating for shared outcomes and communicating the actual focus of the study. It can also be written by one person or a group of contributors (Minocha, 2009). YouTube video downloads; Google images and vector graphics were used alongside maps, texts, stories, figures and other relevant information in a manner that gives a coherent guide to the various vital activities to support participants' engagement in an interactive manner. These are a few of the many reasons for prioritising WordPress blog. The challenge here was to communicate academic ideas in simplified ways that could make all potential participants feel conversant enough to participate.

For Iteration 4, one of the major reasons for using WhatsApp for this iteration was due to the rise in its usage as a mobile chat app and social networking platform

globally and in Nigeria in 2016 (Nitza and Roman, 2016). The rise in its usage lays in the affordability its mobile app to network, recruit, interact and communicate amongst participants (thus serving as a better alternative to SMS) (see Table 3.4). Its mobile app also performs well on a lower bandwidth, requiring thus facilitating for lower usage. These attributes explained why the WhatsApp platform performed much better than other platforms for this study as most participants showed more interest in engaging through it, thus, resulting in the highest number of participants for this study (see Chapter 5) (Choudhary, Momin and Kantharia, 2015; Nitza and Roman, 2016).

The perceived advantage of using an online platform format is that all ideas were archived electronically in their original form as contributors posted their comments at will. It allows users to log on for a more extended period to enable time enough before posting their ideas. All contributions were retrieved later for further transcription and analysis as reported in Chapter 5 and Appendix D.

3.4.2 Participation issues

Participants' selection approach began online where participants were identified, selected and categorised through volunteered self-selection sampling (a participant chooses to participate of his or her own volition). A wide range of over 644 people were contacted by both the researcher and participants at different times within timeframe, out of which 302 different participants joined (from within and outside Nigeria) and comprising different categories of people. As a prototype action- research, the study did not aim for comprehensive representation of all the residents in Nigeria or in the diaspora. Instead, it aimed at testing the workability of the methodological approach in order to inform future implementation, if proven to be effective. Online possible participants were initially identified and approached through various structures and organisations, such as universities, schools, the researcher’s links, and participant’s links, LinkedIn, Facebook and WhatsApp, amongst others (see Table 3.5).

Participant recruitment was primarily based on snowball, chain or networking method. The process included the situation whereby those already contacted either provided names of other potential participants known to them or sent direct messages to the contacts themselves. This approach became necessary because

it afforded expedited and easy access to possible participant and target groups that were difficult to reach solely through the effort of the researcher.

Table 3.5: Sample social structure through which possible participants (both in the diaspora and Nigeria) were identified and recruited

Organisation/ companies /ministries	Professional groups/CBO/NGOS	Universities	Religious groups	Researcher's direct contact
Federal Capital Development Authority Abuja (FCDA)	LinkedIn	Baze University, Abuja, Nigeria	Living Faith church, Durumi Abuja	Friends
National Secretariat Abuja, Nigeria	Nigerian Institute of Planning(NITP),	University of Jos, Nigeria	Redeemed Christian church Abuja	Colleagues
Abuja Geographic Information System, Nigeria (AGIS)	Nigerian Institute of Building (NIOB),	University of Witwatersrand Johannesburg, South Africa (SA)	Abuja Central Mosque	Acquaintances
Kuje Area Council	Town Planners Registration Council (TOPREC)	University of Science Malaysia	Saint Mary's church in Abuja	Family
Federal Ministry of Housing and Urban Planning	Read learn and grow literacy organisation of Nigeria (RELEGLON)	Kaduna State Polytechnique Kaduna, Nigeria	Living Faith church, Wynberg, South Africa	Women support groups
	Peace front for Development initiative, Abuja, Nigeria	University of Loughborough, Uk		Youth support group
		Enugu State University of Technology, Nigeria (ESUTH)		

However, in order to facilitate data analysis on inclusivity, participants' demographic data were also solicited. The inclusiveness data analyses were guided by the different categories of inclusivity within the Nigerian context as well as criteria of inclusivity as stipulated by the United Nations (1999) at the global level (see Section 2.6). These categories include socio-economic status, income, gender/sex, ethnicities, profession, tribes, age, disability, educational status and religious groups, among others (see demographic section in Appendix B which illustrates 11 critical categories of inclusion and 72 possible sub-categories for the study).

One primary criterion for selecting participants depended on their willingness to learn about the study focus while, at the same time, ensuring participants had access to the on-line information pool to facilitate their input and contribution via sharing and interactions online (see Table 3.6). In this way, although some

participants were not resident in Nigeria or aware of Abuja's historical development process, they were willing to contribute positively within the framework of the study while at the same time learning through the process.

Table 3.6: Criteria for selecting and recruiting participants for the e-backcasting task

Inclusivity criteria in selection recruitment process	• Accessible online through one of Facebook, Blogs, emails • Those who frequently share and use online contents at least once a day, particularly within the time set out for the study. • All self-volunteers Nigerians; irrespective of whether they reside in the country or the diaspora • Adults 18 years and above, males, females, experts and non-experts, • Users of any four of MTN ng, GLO, Etisalat and Airtel networks • The choice of the participant for the online process was more inclusive rather than exclusive
Exclusivity criteria in participation	• Nigerian Nationality • Participants excluded from participating due to lack of access to adequate technology, cost and data limitation • Participants 17 years and below were excluded • Participants who were not ready to neither commit to the rules nor give reasonable time within the time frame for activities before opting out. • Anyone who does not fall into the inclusion criteria is automatically excluded

The dynamic nature of these platforms is that it allowed room for stakeholders who wished to dropout, leave or opt-out for a while and resume later, as this could be granted as well as for new participants who might want to join the process, at whatever step or stage.

To facilitate contacts between the researcher and participants and amongst participants, two modes of recruitment approach were used as follows: non-social media approach and social media approach. Social media approach was the significant recruitment and interactive medium for the study. The non-social media recruitment approaches were in two ways and had the advantage of combining both direct physical contact and texting. The first involved the researcher using different telecommunication networks to send bulk SMS simultaneously to various recipients to solicit participation using mobile smartphones. The focus was to give consenting participants the opportunity to express their minds freely.

The recruitment process started from the researcher's contacts and spread out to other links as shown in Table 3.5. Through these set-ups, there was a lot of chatting, communication, and networking among possible participants either across the same network or between two or more systems in a conversation at the same time. The second non-social media recruitment approach involved sending

emails to individuals via e-mailing sample obtained from purposively sampled organisations and groups (see Table 3.5 and 3.7). Possible participants who were willing and interested showed consent by responding to emails as captured in detail in Chapter 6. However, accessing and obtaining approval from possible-participants became a highly complex task.

Table 3.7: Social media and non-social media enrolment and recruitment modes

Modes of enrolment/ recruitment	Key instruments	Format of recruitment	Platforms engaged	Start date for exploratory contacts across categories	End date for exploratory contacts across categories	Duration /weeks
Social media mode	WhatsApp	Contact and chat, network among participants	WhatsApp	28th February 2017	30th May 2017	12
	LinkedIn	Contact and chat with participants	All platform	1st September 2016	30th April 2017	32
	Facebook	Contact, recruit and network among participants	Facebook	1st November 2016	14th December 2017	06
	Blog	Nil	All platform	22nd January 2017	30th May 2017	22
Non-social media mode	Google email	Send emails, contact and recruit	Google-email	1st September 2016	31st October 2016	08
	Mobile phone network	Send bulk SMS to participants to seek both consent and recruit	All platforms	1st September 2016	30th April 2017	36

When obtaining consent from possible participants, it was made clear to them the nature of information to be collected, their intended use and knowledge possible-participant could expect to gain from their participation. The moderation policy and site participation guidelines were also sent to possible participants (especially urging them not to deviate from the study focus, or use foul and provocative language, posting content that was out of context such as political, pornographic and personal content, post business advertisements, impersonate or falsely claim to represent a person or an organisation, amongst others, for the site is solely for academic work). At the start of activities, all participants' comments were pre-moderated to check if they were complying with the participation guidelines listed in the moderation policy as sets above. Participants were informed that if their comments did not comply with the standard, they would not be published.

The non-social media recruitment approach was a complementary to the social media approach. The procedure was to primarily help in not only recruiting, but also creating awareness, particularly with possible participants who may not have been aware of such an interactive exercise. The method allowed for one-on-one physical contact with individuals as the opportunity presented itself. The challenge with the use of this approach was that a lot of personal effort and commitment was required both in contacting and sending reminders to prospective participants. There was also the risk of targeted participants not responding. It consumed immense time and money to the researcher and particularly the cost of airtime, data bundles and internet service.

On the other hand, the approach saved time and money because social media networks are highly appropriate for non-probabilistic sampling and recruitment. Amongst other options such as conventional phoning, faxing or mailing, it is relatively less costly in money and time. The approach, therefore, facilitated easy and quick access to a broad online community and enormous pool of possible participants. This immediate access was of substantial benefit given the study focus on participation and also the fact that the drop-out rate through the prototyped-process was expected to be high. The challenge was that many of the targeted participants did not show interest initially because of unfamiliarity with the subject matter of the study as well as concerns with time commitment for pro-longed participation.

3.4.3 Ways in which participants' knowledge and opinions were included

In each of the four platforms, the e-backcasting method solicited participants' knowledge and ideas by using an interactive and iterative online process which also facilitated also adapting inquiry into e-backcasting with several written texts to guide stakeholders in thinking and brainstorming first about Abuja's current state, then re-visioning backward to acquire the needed change. Participants' ideas and perspectives (based on five focus issues) were deliberated on, accompanied and guided by open-ended discussions. The approach was similar for all four tools regarding the degree to which, and the approach in which participants' ideas were brought into the prototyping task and the nature of their engagement. Three different categories were identified for analysing the nature of participation: passive or active participants input, the extent to which the various tasks of the e-

backcasting procedure was open or closed for participants' response and bottom-up or top-bottom approach to knowledge and views on the subject matter.

Passive or active involvement

Looking at the case of active participant input, participants were willingly and actively involved in the e-backcasting process as individuals with their own views and knowledge while passive participants never contributed (most of them preferred to be on the observer side). Although passive participants did not interact in the dialogues, they were still counted (because they gave consent). As such they have played a major role in the study especially towards an understanding of how social media is expected to impact participation in the e-backcasting approach. For the email platform, those who sent apologies through emails or made promises or other similar responses were also regarded as active participants while those who never responded to any of the emails were considered as passive participants. For the Facebook tools, those regarded as active comprises those within the group of participants who committed to either like, view and/or sometimes comment by further sending responses through Facebook messenger. The "Like and View" attributes make Facebook platform operation very different from other platforms (see Section 5.2 in Chapter 5).

Participants who actively engaged in the different prototype stages through moderated deliberations and deliberation processes brought their knowledge and awareness into the e-backcasting process. Many participants maintained their participation to the end of the study period thus, indicating consistent commitment. The degree of stakeholder involvement in recruitment process was in fact relatively low. For most of the platforms, participants' responses to the first three sets of activities and schedules (the current state of Abuja and the re-visioning process with regard to the creation of scenarios and e-backcasting final reports) were limited. In contrast, the influence of participants on the re-visioning steps through scenario planning and SWOTs analysis was high because ideas were generated; proto-scenario development, scenario evaluation and elaboration of e-backcasting stages were entirely based on the contributions of participants.

Open or closed tasks

Tasks sets for the direct contribution of inputs by participants were regarded as 'open'. A highly focused creative process was used in engaging participants, thus

helping to explore ways, which may possibly lead to a long-standing change to a sustainable future for Abuja. The response option and strategy creation tasks were open, except for the one-on-one assessment task that was administered individually to each participant (see Section 1.11 in Chapter 1 for details).

The first set of activities was deliberately focused on generating ideas towards problem delineation. Participants strongly influenced the content, but they had little influence on the process and who participated (see also Table 5.25 in Chapter 5). Participants also had more influence on the SWOT analysis, scenario creation and the re-visioning process. The researcher (who also doubled as the moderator) moderated the use of ambiguous terms. The input on the moderation role consisted of oversight on the discussions and thus mainly ensuring that participants had the essential information on sustainable city development. The moderation process guided participants' contributions to the deliberations, particularly on 'what' and 'how' issues were discussed under each task as they participants improved on their understanding.

The generation of the sustainable-city vision for Abuja under backcasting started with participants brainstorming ideas through a creative process on the best sustainable-future scenario to aspire for as the final prototyped vision for Abuja within the 50 years' time-horizon. The selection process narrowed down from 41 to 17 to 9 to 4 and finally to 1 scenario. In fact, each future vision had its supporters, but at the end, we had to arrive at a consensus using the ranking system (see Section 1.11, Chapter 1 for details). It was also evident that some participants did not commit themselves firmly to a particular vision but had only a general interest which meant that they went with the flow.

After having discussed and reached an agreement on the desirable future scenario/vision, participants then worked on exploring pathways for the desirable future state (see Appendix D). With ongoing moderation by the researcher, participants created change elements, specific activities and made a general list of actors. The researcher also developed the formats and detailed scripts for each e-backcasting task (see enumerated task in Table 3.8 in Section 3.4.5).

Bottom-up or top-bottom approach

Participants' views were integrated, using a combination of both bottom-up approach and top-bottom approach, rather than using the commonly used top-

bottom approach in decision-making under masterplan or modernist planning approach. Participants' views on particular topics were deduced from general classifications of perspectives top-bottom, such as ideals on types of sustainable city development approaches. A mixed participatory approach of both top-bottom and bottom-up was adopted for this study. This was specifically evident where the group moderator regulated against the use of ambiguous concepts and professional or technical terms (relating to city planning) in order to encourage each participant to talk about their concerns within the level of language they could master.

Each platform had its respective discussions guided by specific topical issues without imposing disempowering ideas from outside (see Appendix C). The concepts that participants used to think about sustainable city development and the visioning process were stimulated by relevant short YouTube video presentations and in some cases, pictures and Google–sourced images or graphics which facilitated better understanding of the various topics discussed. Open-ended questions were also attached to the topics to cover sustainable city issues and a wide range of key guiding possibilities.

For ease of understanding and follow up by each participant the procedure was repeated every 48 hours for WhatsApp. For emails, blog, and Facebook, the repeat was every other day/week within time schedules until all active respondents had the opportunity to contribute their ideas. Participants' thoughts and ideas were thus aroused in a bottom-up manner. One may perhaps maintain that such an open, bottom-up process that includes participant point of view are endless as there are as many different perceptions as the individual participants.

However, this study has revealed that in all the tasks and recruitment processes, the outcomes of snowballing significantly enhances the inclusivity outcome as one of the critical objectives of the study. The inclusion was not only proven in a way that reflects the wide-range of participants due to the diverse sample found within the 302 participants recruited but also the level of inputs obtained. It is assumed that the range of participation and inputs is adequate to approach the proximal variety of inclusiveness of participation represented by the purposely selected sample used in the study.

3.4.4 Re-visioning issues

The “five steps methodological framework” of Kok et.al. (2011) was adopted and slightly modified by compressing the five steps into two phases for ease of online administration. The first phase involves the development of future vision and deliberate problem orientation, while the second phase involves choosing the preferred future vision and engages the e-backcasting and assessment of impact and knowledge gained among participants. Each step involves the use of several types of online interactive data collection tools (see Appendix B, C, D, E and F and Figure 3.4). All information at this stage was obtained through varying opinions of participants, their mind-set, values, experiences and interests in five steps as shown below.

Step 1, had to do with preliminaries such as the introduction and scoping activities geared towards obtaining the composition, category, and knowledge of participants engaged in the exercise

Step 2, involved the engagement of participants interactively deliberating the present physical state of Abuja city. This stage required describing the present state of Abuja city across

- Enhanced participatory governance and decision-making,
- Urban form and quality of built-environment,
- Infrastructure and services,
- Socio-economic and well-being, and
- Environmental and resource conservation and division of the city and physical implications on its developmental pattern (see Appendix D). Participants then brainstormed the factors driving change and development in the relevant areas of Abuja planning, needing sustainable development such as infrastructure development, housing, government funding, employment, security, environmental and aesthetics conservation among others. Participants also brainstormed on how these issues and their challenges relate to their needs.

Subsequently, the researcher gathered the data generated, clustered them together using SWOT analysis (alternatively SWOT matrix) in order to evaluate the strengths, weaknesses, opportunities, and threats involved in the development process of the various scenarios or future vision for the city of Abuja (Hay and

Castilla, 2006). The analysis also involved identifying and grouping critical pieces of information into two main categories: the internal (strengths and weaknesses internal to the city) and external factors (opportunities and threats external to the city) that are favourable and unfavourable towards achieving the future vision come up with strategies in overcoming the city's administrative challenges. The SWOT was also utilised in guiding the matching and translating the data obtained into a suitable format for analysis. Matching was used to find competitive advantage by matching the strengths to opportunities. Translating basically entailed the application of translation mechanism from weaknesses or threats to strengths or opportunities.

Brainstorming on the various topics posted helped participants in thinking through the SWOT process while concurrently overcoming some of the challenges faced by conventional brainstorming. With the online platforms, participants brainstorming of ideas happen within in the same time (individual participant does not have to wait to take turns in a discussion, as is common in verbal brainstorming (Pinsonnault et al, 1999). The concurrent brainstorming process assisted in arousing the interest of participants and aided the smooth flow of ideas being generated without possible interruption through conscious communication thus limiting the extent of distractions (Michinov, 2012). More plans were produced as participants added more thought to the opinions of others thereby leading to a fully dialogical participation.

Step 3, after considering the relationship between all the categories mentioned in step 2, 41 stories or images were created and subsequently converted into four accessible scenarios. These scenarios basically were composed of descriptions of possible futures that reflect different perspectives on the past, the present and the future, starting with critical issues that require an immediate decision, their factors of success and failure. Participants' determination and desire for change was the driving forces that facilitated a wider extent of opinion and brought about diversified possibilities (Van Notten et.al, 2003, Mietzner and Reger, 2005; Schwartz, 2012).

The 41 scenarios were further subjected to 1st, 2nd, 3rd, 4th and 5th level ranking in order of importance and uncertainty. The 'ranking approach' was necessary because there was no opportunity for participants to vote due to the nature of the online approach as well as time constraints on the data collection stage of the

study. These 41 scenarios were developed by combining two or more critical driving forces of change (government funding, implementation, policy, population) and essential actors and key players (city administrators, residents, planners, other professionals) and their expected practical actions and reactions under the circumstances of each scenario. This approach was aimed with at adding better levels of facts and giving direction to the inquiry into the scenario development process in order to generate an understanding of how various courses of action may unfold and interact in the short-medium, and long-term.

From the five ranking stages, 4 scenarios were created, out of which one target prototyped vision was selected as the desired vision and thus envisioned as the prototyped image of "where we want to be" for the city in 50 years' time (see Appendix D). Respondents cautiously looked at the future of the vision in a well thought-out scientific way along the 50 year horizon with10 year mid-time lines chosen while integrating their views into how to sustain this prototyped vision for Abuja. Furthermore, the goal and objectives of the vision were also determined (using measurable qualitative terms) by brainstorming different ideas, the management actions needed to be taken, including the main driving forces behind these actions. The primary challenge at this stage was deciding which scenario was a more likely path for Abuja's future vision. Scenarios helped participants break through communication barriers as primarily because through the analysis process, participants were further engaged with additional learning.

Step 4 involved the use of the backcasting approach to elicit information about the need for sustainable city development, the role of different stakeholders in pursuit of the new vision, the key variables and drivers that should be considered towards the pursuing future city visions. At this stage, the scenario that became the most desirable was further analysed under the key themes of; challenges, obstacles, opportunities, and strategies needed to guide the attainment of the vision. The analyses also comprised the actions and list of actors required, risk/benefit trade-offs and a list of forceful actions and carefully developed plan or method for achieving the desired vision by the stipulated backcasting within the 50-year time-horizon. Concrete goals and objectives were subsequently specified for the chosen scenario. The challenges, threats, weaknesses, and opportunities presented/entailed in this vision were further deliberated on to ascertain how stakeholders/actors respond to changes in view, their policies, and implementation

process and how these responses vary across the diverse platforms used in data collection. Deliberate ways of transformation were identified, as the last sub-task of the work during the interaction. The attainment of this vision was also carried out using several strategies along each 10-year mid-term plan-periods. Strategies developed in this step were deliberated and labelled as the essential strategies within a backcast. The essence was to ascertain what needed to be done over the next few years to ensuring that all programmes are on course towards achieving the targeted scenario. The stakeholders summarised their backcast by identifying actions, goals and targets, that can be worked on in the immediate future and the 'how' to go about achieving it.

Step 5, deals with the learning-impact on participants by responding to a set of selected questions focusing on evaluating each e-backcasting step as a form of debriefing in order to ascertain the extent to which the basics of the prototyping process influenced insights and willingness to ownership of the vision. The debrief exercise was carried out towards the end of each activity through participant evaluation process aided by the open-ended survey questions (see Appendix B). Participants' responses helped to assess the extent to which they had individually learned through interaction during vision-development and future-present pathway definition processes. Information obtained was primarily expressed with a quantitative target which provided a measurable point of reference as an indication of impact. Participant responses also helped in conducting an appraisal of the success of the scenario-building and e-backcasting techniques. It also facilitated the overall assessment of the adaptation potential of the approach as well as the consolidation of all the outcomes into a set of clear insights and strategic recommendations for the study as a whole (see Chapter 6).

3.4.5 Timing issues

In contrast to the initial estimate of six months, a cross-sectional time horizon of ten months (1st September 2016 to 30th June 2017) was eventually dedicated in conceptualising, piloting and executing the prototyped-based action research for the e-backcasting and finalisation of participation stages of the study (see iteration 1, 2, 3 and 4 in Chapter 5). The initial six month timeframe allotted for this stage was based on the fact that the study was prototype-based and not intended as a full-scale roll-out.

Table 3.8: Proposed versus executed timeframe for selecting, recruiting, engaging, finalisation of participation and data collection

Iterations(1-4)	Proposed start/end date for exploratory contacts across sample groups for Iterations	Duration (weeks)	Executed start/end date for exploratory contacts across sample groups for Iterations	Duration (weeks)	Proposed start/end date for data collection, compilation, iteration and feedback	Duration (weeks)	Executed start/end date for data collection, compilation, iteration and feedback	Duration (weeks)	Time commitment
1: E-mail	1st-14th Sept. 2016 (Piloting)	2	1st-30th Sept. 2016	4	14th-30th Sept. 2016 (Piloting)	2	1st-30th Oct. 2016	4	21 days for posting comments and giving feedback (except for September) and another five days interval allowed for data compilation, organisation, and plan preparation for the next iteration
2: Facebook	1st to 30th Nov 2016	4	1st Nov. to14th Dec. 2016	6	14thNov. to 31st Dec. 2016	6	14th Nov. 2016 to 31st Jan. 2017	10	
3: Blog	2nd to 30th January 2017	4	2nd January to 30th March 2017	12	2ndFebruary to 27th March 2017	8	2ndFebruary to 30th May 2017	16	
4: WhatsApp	28th Feb. to 14th March 2017	2	28th Feb. to 30th April 2017	12	28th Feb. to 30th March 2017	4	28thFeb. to 30th June 2017	16	
Total period	3 months	12	6 months 2 weeks	26	5 months	20	7 months 2 weeks	44	

The ten months timeframe fits within a reasonable timeframe (even though it far exceeds the initial six month proposed). The additional four months were primarily spent on the initial exploratory stage prior to commencement of data capture. Some additional time also went into the finalisation of participation stages, as well as data analyses and derivation of findings (see Table 3.8 and 3.9).

The second and third repeat sessions spanned another six months beginning from 2nd November 2016 to 30th January 2017 and 1st January 2017 to April 2017. The fourth and the last iteration started 28th February to 30th June 2017 (see prototype iterations 1, 2, 3 and 4). As earlier stated, the first two months were dedicated to testing of the procedure while the subsequent eight months and two weeks sessions involved re-strategising in response to challenges encountered in the piloting stage. Table 3.9 shows the timeline for social media and non-social media enrolment and recruitment mode.

Table 3.9: Summary of critical social media and non-social media enrolment and recruitment mode

	Key recruitment /enrolment instruments	Format of interaction/ recruitment	Platforms engaged	Start date for implementing	End date for completing key activities	Duration (weeks)
Social media enrolment and recruitment mode	WhatsApp	Contact, recruit, chat and network	WhatsApp	28th Feb 2017	30th May 2017	12
	LinkedIn	Contact and chat	All platform	1st Sept 2016	30th May 2017	32
	Facebook	Contact, recruit and network	Facebook	1st Nov 2016	14th Dec 2017	6
Non-social media enrolment and recruitment	Email (piloting)	Contact, recruit participants	Google-email	1st Sept 2016	31st Octo. 2016	6
	Mobile networks	Send bulk SMS to participants to seek consent and recruit	All platforms	1st Sept 2016	30th May 2017	36

The second, third and fourth stages of the data collection process for each platform varied. The WhatsApp data collection process lasted for five months from 27th February 2017 to 30th June 2017 while that of email and Facebook both lasted for two months (1st September 2016 to 30th October 2016 and 3rd November 2016 to 30th December 2016 respectively). The blog tool was prototyped for three months (5th January 2017 to 31st March 2017) of which 10 days each were spent on carrying out the back-office task of collating and affirming the findings from the previous data and for integrating the necessary changes. The second and third mode of participatory tool which was the use of LinkedIn and telecommunications networks lasted for nine months starting from 1st September 2016 to 30th April 2017 respectively. The last iteration (which entails the use of WhatsApp) began on 28th February and finalized on 30th June 2017 (see prototype iterations 1, 2, 3 and 4).

Times of participation were done in consultation with willing respondents in order to ensure respect of their privacy. Throughout interactive process with the tools the researcher, acknowledged comments added within a 48 hour period during the time frame allowed for data collection for each stage of the fieldwork. It was necessary to set a limit on time-allocation to ensure completion of the entire scope of on-line participation-process and thus allows for comprehensive data capture. Although the exact time it took each participant to give their responses varied substantially (ranging from one day to two weeks interval), the average time

between initial contacts to when the expected response was received was about four days.

3.5 Data Analysis and Presentation

This section presents an orderly description of the methods and actions engaged to analyse the information obtained from the primary and secondary sources. The analysis was limited to qualitative analysis based on the following structured into sections: thematic analysis and the use of basic complementary qualitative analysis approaches, as discussed in the following sub-sections;

3.5.1 Thematic analysis of the document reviews

Thematic analysis was used to capture, present and analyse secondary data in order to identify which theme for each city, agrees or disagrees with the principles of visioning, implementation, participation and inclusionary approach in line with sustainable city and backcasting approach. Thematic analysis is frequently used as a prerequisite for later forms of qualitative analysis (Yin, 2009; Dawson, 2009). The secondary data reviews were arranged into key topics and sub-topics which in turn led to categories for the data collected from archives/documentations on the two city case studies (Abuja and Curitiba).

Information was obtained from a total of about 44 different literatures, reviewed according to sub-question 1 and 2, then concise and combined into units of outgoing suggestion. The connection patterns were identified and interpreted based on a descriptive approach. The documents/literature source made a significant difference as they created patterns and connections that helped to address the sub-questions demonstrated by the study (Boeije, 2010). In an attempt to safeguard every key detail retrieved from the reviewed documents and to convey sense to the writings from the documents reviewed, the following was considered;

- The secondary data obtained for Chapter 4 were all subjected to thematic analysis (see Tables 3.10). Data obtained from the archive documents and other research publications were organised under a number of themes. The themes and their elements either agree or disagree with the criteria/parameters conceptualised to guide data-capture for the key theoretical issue analysed under the term ‘Yes’ or ‘No’ (focusing on the strongest point of each case city). The processes involved collating and connecting them, identifying the connection pattern, clustering and counting, after which the connection of each

criterion with the themes was discussed in order to derive the sub-findings. The sub-findings were presented fewer than two key theoretical issues which are sustainable city vision and inclusivity of the participation in the visioning and implementation process.

Table 3.10. Thematic analysis of Abuja and Curitiba from documents/literatures reviewed in Chapter 4

Abuja			Curitiba		
Historical background and context understanding of vision	Sustainable city attributes of implementation and outcomes of approach within specific periods	Outcome of the participatory and inclusive approach to realising the vision within specific periods	Historical background and context understanding of vision	Sustainable city attributes of implementation and outcomes of approach within specific period	Outcomes of the participatory and inclusive approach to realising the vision within specific period

- The data analysed for Abuja city were abstracted from 7 archival documents and 27 supporting academic articles (see Appendix A). 10 of the 27 journal/books publications were used to generate the data base for the visioning process. In addition, 7 and 10 supporting articles were also reviewed for sustainable and participatory attributes respectively. The data for Curitiba were extracted from 17 sources. All two key theoretical issues measured were based on a sustainability and backcasting perspective (the two theoretical fields share some common elements) while assessing the adequacy of the methods and participatory approaches applied as well as the implications and insights for sustainable-city development responses for Abuja (see Appendix A).

- In the process, the data identified were narrowed down and arranged one at a time into coherent categories that summarise and bring meaning to the text
- The data obtained were then presented and interpreted using pictures, graphs and tables as observed. Information gotten on the developmental stages, vision and the level of inclusiveness in participation were processed by comparing and contrasting, confirming or rejecting the conclusion and then appropriate recommendations were made

3.5.2 e-Backcasting technique

In order to interpret data obtained via the e-backcasting technique, the stages listed and described in Section 3.4 are the exact steps of the e-backcasting techniques used for data collection and analysis for the study. For ease of analysis, sub-

question 3 and 4 were addressed under Chapter 5 which presented the actual step-by-step application of the e-backcasting approach, addressed the extent of participation/inclusivity and impact of the e-backcasting experience on participants (see Table 3.11).

Table 3.11. e-Backcasting participatory technique applied in Chapter 5

•Access/recruitment of participants	• Platforms and extent of participation • Platform and recruitment process • Access and extent of participation • e-backcasting/extent of participation • Time frame/extent of participation
Extent of participation •Inclusivity of the approach	• Participants' profiles and recruitment process, interactiveness and influence on the level of inclusiveness
Impact of participation on participants knowledge (assessed across step-by-step basis of the exercise)	• Scoping stage • Deliberation of status quo of Abuja city • Scenario creation • e-backcasting exploration

Data obtained from respondents were gathered and collated in formats that aid quick analyses on a step-by-step basis. Findings were presented using narratives combined with simple basic descriptive qualitative statistics such as graphs, tables, figures, percentages and Likert scale in order to address sub-questions 3 and 4 of the study.

3.6 Ethical Considerations

The starting point for addressing the ethical concerns of the study was to seek ethical clearance from the University of Witwatersrand where the study was based. One method used in accessing government archival documents was the presentation of an introduction letter to the directors/head of the ministries and agencies in order to facilitate easy access. Likewise, to encourage participation, ethical consideration was applied by first presenting the focus, aim, and objectives of the study to prospective participants through an initial process as a form of debriefing for the survey. Since the online involvement via e-backcasting platforms was the major source of data, keeping participants identities anonymous could not be guaranteed, but confidentiality in the dissertation reporting was guaranteed. Confidentiality was ensured in the interactive exercise, by not including participants' real names as part of the demographic requirement. In keeping confidential, the identity of participants and to further encourage uninhibited responses, free from fear or bias, platform codes (for example email respondent, WhatsApp respondent, Facebook respondent and blog respondent) have been used to anonymise participants identities in the dissertation. Bryman, (2008)

highlights the critical requirement of informed consent in ethical research. Informed consent not only provides the participants with the opportunity to set the terms for the research participants, but also serves as part of the confidentiality agreement for the research. Participants' willingness and acceptance to voluntarily participate on-line was taken to be an indication of consent, and no formal/signed approval was solicited for that component of participation (Saunders, 2012). At the initial point of contact, potential participants, regardless of the degree of their contributions, age or status, were informed of the purpose of the study work, whether through emails or other on-line platforms. Essential information was provided, specifying what was expected of the participants, what backcasting is and what knowledge prospective participants stand to advance and contribute based on their participation in the study.

Finally, part of the ethics framework required risk assessments before and during the research. Opportunities were given for concerns to be raised, based on any element of fraud, inducement, deceit, or manipulation, as well as freedom of choice exercised by the participants. Clear communication also covered the purpose, value, and extent of participants' voluntary involvement and the opportunity to withdraw from participation at any time since participation was voluntary. In order to further gain the confidence of participants, they were assured that data collected was solely for academic purposes and security was ensured by securing strict data management process. This section considered the right to privacy, informed consent and professional honesty as captured in the study, which is a fundamental requirement for the research (Saunders, 2012). The researcher also declared her intent to remain open to the views, ideas or contribution of any of the participants, and ensured that the participants were not at risk for their contributions to the study. As a way of appreciating and acknowledging participation contribution the results and conclusions drawn from this study were open and available to all contributors and participants, without bias.

4 CHAPTER FOUR: IMPLEMENTATION, PARTICIPATORY AND INCLUSIVE APPROACHES TO SUSTAINING CITY VISION(S): THE CASE OF CURITIBA-BRAZIL AND ABUJA-NIGERIA

4.1 Introduction

The Chapter is divided into two sections according to sub-question 1 and 2. The first section addresses sub-question 1 based on secondary data related on city visions and their implementation principles/criteria of inclusive participation within a sustainable/backcasting context. The primary approach for the appraisal is to evaluate the extent to which such studies could yield insight to guide an inclusive pathway towards a sustainable city vision for Abuja from an international experience perspective. The principles and criteria were distilled from extensive review of a purposefully selected case study; Curitiba (see selection criteria in Section 3.6.4, Chapter 3). The focus was to extract insight on a global perspective, particularly with regards to inclusiveness in urban visions, plans and administration of cities, as prioritised in the research question as well as aim and objectives of this study. The insights also guided on how sustainable city initiatives have contributed not only to inclusive participation, but also to development economically, socially and environmentally, while improving resource efficiency and minimising environmental, social and economic depletion. Each case study outcomes were described under two key themes which are; visions of the city, consistency in implementation approach, participatory and inclusive initiatives within the sustainable and backcasting framework, shown in Appendix A.

The second section addresses sub-question 2. It critically examines the past and present approaches used in the implementation of Abuja city vision(s) with a view to substantiate the degree of inclusivity and participation within a sustainable backcasting framework. The data used for the analysis were obtained from secondary sources, as earlier explained in Chapter 3 (see Table 3.1). Data obtained from archive documents and related publications were organised under the same three major themes (city vision, consistency in implementation, participatory and inclusive approach in relation to a sustainability-visoning and backcasting process. The aim was to identify the various approaches across the

implementation stages of Abuja city visions and its evolutionary process in relation to a sustainable city agenda, participation and levels of inclusiveness. The analysis is based on a detailed critique of the Abuja city vision, as well as a critical assessment of various implemetation efforts of leadership and political impact on the vision(s) in the context of two stages which are before and during sustainability era (1974-1989 and 1990-2017, respectively). The section also sustantiates the assessment of the incidence of the participatory processes used in order to derive insights on the extent of participation and inclusitivity. The chapter then presents a summary of the related outcomes and lessons based on the matrix for Abuja city (within a sustainability/backcasting framework). Data presentation and discussions for this chapter are therefore structured as follows:

- Curitiba City vision(s): Background and context understanding
- Participatory/inclusive approach towards implementing the vision within the sustainable and backcasting context
- Outcomes and applicable lessons from Curitiba's inclusivity and participatory approach
- Abuja City vision(s): Background and context understanding
- Pre-sustainability era and approach to the vision from 1976-1989.
- Sustainability era and approach to the vision from 1990- date.
- Critique of the participatory/inclusive approach towards implementing Abuja City vision in relation to the sustainability/backcasting context.
- Conclusion: Planning for a sustainable city pathway for Abuja city.

4.2 Curitiba's City Vision: Background and Context Understanding

Similar to cities in the developing countries, Curitiba suffered from escalating challenges arising from rural-urban migration at an earlier stage of its growth. Soon after becoming the capital city of Paraná in 1853, Curitiba encountered several challenges in its attempt to acclimatise to the new administrative changes required by its new position as a capital city. The challenges were severe that city administrators suffered a great deal from the fear of continuous unavoidable loss of green areas, urban sprawl and increased poverty. Between 1855 and 1857, the administrators set out to employ the services of French engineer Pierre Taulois, who attempted the first urban planning for the city. Taulois designed the streets straight and parallel and through a chain of events, he started to address the growing concern of movement within the urban setup (Irazábal, 2009, 2017).

The city also received further French influence in its second largest urbanism plan, when Alfred Agache, a French urbanite, came up with the first city eco-plan in the 1940s known as the Agache Plan of 1943. In the bid to mitigate the negative effect of urbanisation, the experts or planners conceptualised the Eco city vision which was aimed at “rebuilding the city in balance with nature” (Lundqvist, 2007: 22; Joss, 2010, Beatley, (2012)). One of the vision-elements of Curitiba was to be a greener city in order to serve as a model for sustainable development in other Latin American cities (Institute for Research and Urban Planning of Curitiba (IPPUC) (2009). The vision and plans emphasised a star of streets, with most of the community facilities areas located at the business district adorned with an industrial zone and public health infrastructures, thus becoming Brazil's ecological capital (Leitman and Rabinovitch, 1996; Rabinovitch and Leitman, 2004). The vision concentrated on preserving and improving the quality of life of its citizens and averting substantial worsening of its urban environment as a result of rapid growth. The planning process reflects a rigid top-bottom and linear planning approach guided by modernism (an approach to give expression to the Curitiba vision of becoming a green city (approach similar to that of Abuja, as presented in Section 4.3.). The Agache plan was never fully implemented due to lack of funding and it was also left unattended subsequently, due to military authoritarian rule in Brazil at the time. The consequences of the delay of the implementation resulted in city expansion beyond its physical and infrastructure limits.

Curitiba's third large urban plan is the one that is still currently in effect. It was created in the 1960s, when the notion of global and integrated planning was gaining force (administratively blending a mix of both top-down and bottom-up through the application of a participatory process). The vision and plans re-emerged in the decades following the 1960s, when a team of professionals from the institute of Universidad Federal do Parana, under the headship of Jaime Lerner came up with the Preliminary Urbanism Plan of 1965. The institute eventually produced a proposed master plan for Curitiba in 1966. In 1968, the plan was adopted and used by city administrators to develop creative and cost-effective strategies for solving its urbanisation problems and has since then been developed, updated, and maintained (see Table 4.2) (Menna and Chiesa, 2010). The master plan became the blue print for sustainable urban design by balancing the environmental, social and economic component of the city (Campbell, 2006).

4.2.1 Participatory and inclusive approaches to implementing Curitiba's city vision within a sustainable and backcasting context

Curitiba's sustainability programmes became a success through the blend of different strategies, participatory, decision-making processes, and the implementation of innovations in transportation, education, public welfare, heritage conservation, employment, leisure opportunity and waste management programmes (Mills, 2006; Wilheim and Monteiro, 2013). Part of the source of success for Curitiba was the use of a strategic sustainable participatory approach (alongside strategic backcasting steps) incorporated into their diverse range of research works and experimentation carried out by the research institute -the Institute of Research and Urban Planning of Curitiba (IPPUC). Another major advantage the city has enjoyed is the contribution of mayors who are also experienced architects and planners (Alberti and dos Santos, 1996; Ardila-Gomez, 2004; Taniguchi, 2006; Soltani and Sharifi, 2012), with Jaime Lerner as a key example, as he became a three-time, most popular, thriving and inspiring mayor of Curitiba (1971-75, 1979-83 and 1989-92). Through his innovations for Curitiba, he has significantly influenced global thinking on sustainable city transitioning and has worn several awards relating to his Curitiba experiences.

Backcasting works through envisioning and analysing sustainable futures and subsequently developing agendas, strategies and pathways on how to get there. This has attracted attention from policy-makers in many countries as well as scholars in foresight or future-studies and sustainability studies. Curitiba's city planners were able to engage some elements of backcasting for sustainable city transitioning. For example, instead of relying on a few large-scale planning approaches, they instead opted for hundreds of small-scale practical and innovative solutions, anchored on inclusive participation, in order to enhance the urban quality as a basic premise towards sustainable transitioning. It has been elaborated in Table 4.1

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Table 4.1: Selected inclusionary/exclusionary participatory approach to Curitiba's vision and outcomes

Administrators mayors	Period	Exclusionary/inclusionary practices and milestones	Outcomes of specific periods
Aristides Ataíde Júnior	1958-1961	Integrated planning of all elements within urban system centred on transportation	Aim at meeting citizens transport need by reducing car ownership
Erondi Sivério	1961-1961	Master plan development	Expand city along linear axis/reduce congestion at the city centre
Erondi Sivério	1961-1961		
Ivo Arzua Pereira	1962-1962		
Erondi Sivério	1962-1966	In1963 URBS and Curitiba Research and Urban Planning Institute (IPPUC) were established as a co-ordination platform for the implementation of the plan. The pre-implementation phase of the urban master plan from 1965-1970	during which the different demands from different groups of society on the development of Curitiba where considered
Ivo Arzua Pereira (last mayor elected before military dictatorship installation)	1966-1966	In July 1965, public participation was encouraged through a series of public forums/seminars called Urbanism Month and Curitiba de Amanha (Curitiba of Tomorrow). Through this detailed plans were presented to the citizenry for appraisal and feedback.	Planning approach was democratic, as it allowed the integration of public participation to improve quality of life and to follow the social, political, cultural, and economic evolution of the city and the state
Acyr Haffez José	1966-1967	Between 1967-72 Land Use was integrated into mass transit	
Omar Sabbag	1967-1971		
Edgar Dantas Pimentel	1971-1971	Implementation phase of pedestrianizing downtown Curitiba from 1972 to 1993	
Jaime Lerner	1971-1974	Development of the integrated transport system/road network and land use legislation. From 1971-74 North-South Axis BRT was constructed	Allowed for environmental preservation, cultural services and used legislation to achieve the linear axis expansion
Donato Gulin	1974-1974	Implement the first two bus lane along the structural axis to the south and north	
Saul Raiz	1974-1979	Created land use legislation in1975 and added three bus lanes to the axis. New computer technology was added to the traffic system. Between 1975-1982-Light rail line suggested but was not implemented. By 1977 and 1979, Boqueirão BRT corridor and Integrated Transit Network (RIT) were implemented	The RIT introduced two major changes; the circumferential services connecting terminals, and flat fare.
Jaime Lerner	1979-1983	Creation of Curitiba industrial city (CIC) by1979 and established CIC zones and introduced social fare. In 1982, expanded the structural axes into five, completed with feeder lines and inter-district lines to complement existing transport system. Between 1975-82, Light Rail Line and the East West Axis BRT were constructed	Create job opportunities, use zone laws to control growth/used high-density development to reduce sprawling. The poor benefit from the social fare by paying less at subsidised rate/distance
Maurício Fruet	1983-1986	1985-87 Public Fleet was created alongside Change of fare policy	
Roberto Requião	1986-1989	Changes in operators remuneration mechanism and introduction of public fleet	
Jaime Lerner (second democratically elected mayor after the end of	1989-1992	From 1989 to 1990 the Direct Bus Service, rapid bus system and tube stations, BRT were introduce using boarding tubes.	The garbage programmes introduced a wide-scale separation of domestic waste into different types of garbage, exchange of recyclable garbage for fresh produce that was in season

military dictatorship in 1985)		In 1989 created recyclable garbage programmes like the 'Lixo que não é Lixo', 'Câmbio Verde a Green Exchange programme and the Compra do Lixo programme. From 1989-94 Light Rail Line was re-introduced	
Administrators mayors	**Period**	**Exclusionary/inclusionary practices and milestones**	**Outcomes of specific periods**
Rafael Greca	1993-1996	The first metropolitan Integrated Transport bus line began to circulate in 1993, from 1994 to 96, it was upgrade to the RIT. As at 1995, 'Ferrari red' bi-articulated bus was introduced. The bus ha two buses connected, measuring 22 meters long with five entrance/exit doors. In 1996, in line with Habitat 11, Curitiba was recognised as an example of good urban ecological planning with focus on arresting deterioration of human settlements. For example through several housing programmes Curitiba is free of squatter settlement.	Encouraged mass transportation, as each bi-articulated bus carries 270 passengers. Vilas de Of-Edcio (Villages of All Trades) is a good example of its efforts toward sustainable housing. Each village is composed of varieties of two-story brick houses with the ground floor serving as family-shops while they reside on the top floor (serving as both residents and work place at the same time).
Cássio Taniguchi	1997-2004	In 2002, the Green Line project and Electronic fare collection were conceived. By 2004, after almost 40 years, the urban master plan was revised in line with the new legislation. From 2005, Sunday fare were reduced	Green Line was conceived under the name metropolitan axis and an advanced electronic system was used to replace the coin-based fare collection system. Conductors were stationed on board the buses to accept cash from the non-RIT services to allow them usage of the fare card. On Sundays the RIT fares were reduced to increase the number of people using of parks and public spaces.
Carlos Alberto "Beto" Richa	2005-2010	Green Line BRT corridor starts operation in 2009 thus achieving the 2010 biodiversity target	Reduced consumption of natural resources and production of waste, and provided incentives for investing in renewable energy. Pinheirinho–Centro became the first bi-articulated bus service to operate under the Green Line programme with 6 of its buses having engines that run on either diesel or B100 (i.e. 100% biodiesel).
Luciano Ducci	2010-2012		
Gustavo Fruet	2013-2016		
Rafael Greca	2017-date	Committed Curitiba to advancing the ten principles of the United Nations Global Compact and Sustainable development goal	Developed urban gardens, gave incentive to innovations and creative economy. Develop environmental education grid and immerse the city in programmes that focus on new energies

Source: Selected compilation by Author from Rabinovitch, (1992), Alberti and dos Santos (1996), Ardila-Gomez, (2004), Lundqvist, (2007), Lindau et.al, (2010 a b), Macedo, (2013), Irazábal, (2009, 2017)

The small-scale practical projects strategies and participatory solution programmes ranged from the use of stringent controls on urban shantytowns, reduce traffic in the city centre, conservation of Curitiba's historic zones or areas, and the usage of reasonably priced public transport system among others (see Table 4.1) (Moore, 2006). Most of these programmes were motivated by sustainable city development goals and objectives. Through each of these programmes, Curitiba city planners assumed, indirectly or directly, that total transformation was crucial in order to achieve sustainability.

The ultimate timeframe used in backcasting is 50-75 years. This is primarily because it is far-off to allow key modifications and even interruptions in expertise, way of life, as well as social standards and beliefs. Through similarly aligned strategies and initiatives as enumerated in Table 4.1 and section 4.2, the city of Curitiba has been pioneering urban sustainability pathways for almost 40-years since 1960s through to the 1990s, and then through the early 2000s, to the present especially with regards to its bus-based rapid transit system.

As highlighted by Tlaiye and Biller (1994), Joss, (2010), Lindau et.al, (2010a, 2010b), Macedo, (2013) and Irazábal (2009, 2017) the above mentioned approaches transformed the city into one of the most inclusive and pleasant, dirt free, and energy resourceful capital city in Brazil and throughout the world, thus serving as a global model of sustainable-city transitioning. Curitiba has gained this reputation largely as due to its public strategy alignment towards increasing quality of life by improving the quality of the urban environment such that in 2010 the city was conferred a "Globe Sustainable City Award". Most of the cities strategies are people oriented with participation of all stakeholders as one of the key pillars (see details in Table 4.1). The innovations that led to the city's physical transformation are highlighted in a diverse range of studies (see overview in Appendix B2).The key elements of sustainable backcasting innovations and transformations abstracted from the diverse studies includes the following:

The Integrated Transport Network (ITN): ITN became the foundation of Curitiba's master plan which was geared towards a 90% city-wide bus system known as 'Bus Rapid Transit' (BRT) as it was deemed to be cheaper than subways. The system constitutes of very long connected busses big enough to carry 170-270 passengers. The overall system is capable of carrying about 2 million passengers' weekdays with 70% of the population relying on the system for their

daily commuting needs (see Table 4.2). Though the population of Curitiba has increased since 1974 as shown in Figure 4.1 when the ITN came into full-fledged usage, car travel has decreased by 30% and about 3/4 of the population currently rely on public transport (Gustaffson and Kelly, 2016)

Table 4.2:. Population growth trends in Curitiba

Year	Population
1995	360,000
1965	550,000
1975	1,140,000
1985	1,700,000
2000	2,700,000
2010	3,168,707
2020	3,758,358

Source: Sourced by Author from IBGE, (2010) and IPPUC, (2010)

For over three decades now, in order to house the increasing population since it was initiated, the scheme has matured to utilise different kinds of bus services while also boosting social inclusivity within the city and its nearby neighbour's. The system is characterised by bus routes according to zones, transfer terminals and bus stops, with matching funding for infrastructure upgrade and operations-management (see Figures 4.2) (Suzuki et.al, 2009, 2010).



Figure 4.2: High capacity bi-articulated bus along the dedicated bus way.
Source; Mikesh, (2006)

Park system: In addition to its BRT system, Curitiba is known for its innovative use of parks and green spaces to improve the quality of life of its citizens and

proactively address the effects of global warming. Flood plain areas were converted to parks by planting many trees and creating artificial lakes to hold flood waters. This was coupled with bus and bicycle lanes in order to integrate the parks into the city transport network. The Curitiba zoo was also established as a free park (Irazábal, 2017).

Nearly 20% of the city today constitutes of parkland with an arrangement of 28 parks and tree-planted zones such that between 1970 and 2010, green space per person increased from less than $1m^2$ to $52m^2$. The greening aspect of the city was achieved through cautious devotion to protecting and improving its green precincts through adequate participation of its citizens as they were involved in the planting of over 1.5 million trees along city streets (led by the city guidelines that inspires private land owners or developers to exchange trees uprooted with semi-matured trees) (Suzuki et.al, 2009; Soltani and Sharifi, 2012; Blok, 2012).This also aided in the preservation of historic areas, transformed neighbourhoods and encouraged tourism (see Figure 4.3).



Figure 4.3: Today Curitiba has more than $50m^2$ of green space per person. Source; Adler, (2016)

Recycling* and Local waste management system*: The recycling programme is the third point of Curitiba's environmental preservation. It combines sustainability, social inclusion, and good fiscal stewardship. The city administrators' implemented garbage recycling through local community involvement as a tool for fighting poverty, through creating employment using a programme called Green exchange programme. Over 70% of Curitiba's garbage is reprocessed through its recycling

exchange programmes under the “garbage that is not garbage” programme which was initiated in 1989. The city does not incinerate garbage, and residents must pay for garbage pick-up (based on volume) as they would for electricity or water (Lindau et.al, 2010a; Klink and Denaldi, 2012). The programme encourages domestic recycling through the separate groupings of metals, elastic, cut-glass and paper per month. Further benefits of this programme include an optimistic transformation in residents’ attitude towards recycling and an addition of life of Curitiba’s landfills, thus resulting in the conservation of substantial space. The goal of the additional “garbage purchase” programme was to clean up dense areas in low-income communities (favelas), where garbage collection vans do not have space to circulate. The community sells garbage to the city in exchange for bags of food, bus tokens, notebooks and tickets/vouchers for soccer games and theatres. This means a reduced amount of litter, less infection and less refuse dumped in environmentally delicate parts of the city such as rivers. The programme also entails an initiative for children such that they are able to exchange decomposable waste for school supplies, chocolates, toys or tickets for shows (Suzuki et.al, 2009).

Local environmental consciousness and citizens’ participation: In the early 1970s, when Brazil was accepting the establishments of large group of industries, Curitiba recognised only non-polluting industries planned according to an aggressive environmental design with the goal of improving the quality of life as well as transforming the city landscape. That led to the establishment of Curitiba Industrial City (CIC). Figure 4.4 shows a unique example out of several outcomes of the Master Plan, where emphasis is on the quality of the environment while focusing on walking and cycling and same time preserving the cultural heritage of the city lined with gardens tended by street children (Garrard et.al, 2012; Wilheim and Monteiro, 2013; Kaplan et.al, 2015).

The reason for going for non-polluting industry was to protect the surroundings, particularly residential areas from city to reduce heavy pollution, health hazards, provide recreational areas and equip the city with a good transport system that aided the reduction of time travelling to work. This was attained through the use of zoning rules to guide the location of commercial activities. A severely imposed citywide strategy safeguarded the rivers and streams. Builders get tax breaks if their projects include green space (Cohen, 2011; Ahmed, 2013; Dixon and Eames, 2014).



Figure 4.4: Bariqui Park; a pedestrianised street at the heart of Curitiba
Source: Mikesh, (2006)

Social uprightness, improved quality of life expectancy and community well-being approaches: Curitiba's inclusivity programme also addressed education and health issues. The concentration of social programmes is on poor citizens with the objectives of ensuring social justice. The city's public housing programme developed one of the largest available lands called Novo Bairro-a new area as homes for about 50,000 poor families. The city engaged the destitute and recovering-addicted people in its refuse dumps separation plants (Macedo, 2004). Ever since the 80s, the city executed free educational centres within communities called the Faróis de Saber (Lighthouses of Knowledge). Through these different programmes, basic services like education, food and health care have been provided in very poor areas in the city, thus improving the quality of life expectancy for all (Taniguchi, 2006, Lundqvist, 2007). The Curitiba case serves as a clear example that social, environmental and economic solutions can be incorporated into an all-inclusive approach to encourage improved quality of life through sustainable city transitioning.

4.2.2 Sustainable outcomes and applicable lessons from Curitiba's inclusive participatory approach

The level of inclusion and participation, as observed in Curitiba's transitioning and management over time, have gotten it global acknowledgement as a model sustainable city in an emerging country such as Brazil (Rabinovitch, 1992). The systematic approaches and outcomes of Curitiba's success as enumerated in

Table 4.1 provided solutions to change at various scales and helped in countering some of the dominant believe that urban sustainability is costly. Curitiba's experience also countered the fact that achieving a vision through backcasting approach is untenable because of the effect of unforeseen circumstance never envisage, through the following processes;

Curitiba's people oriented urban planning practices

The creation of a self-regulating metropolitan institutional structure such as the IPPUC provides for the continuity in vision and implementation of related pathways which in turn facilitated for Curitiba's long-term success. For example, the continuity and commitment in the pursuit of the ITN, parks, environmental policy and other strategies were the general ideology and goals that have helped Curitiba effectively address the problems encountered through its 50-year transition. It paved the way for a less congested, sustainable, and more equitable city over a half century within the age of emerging mega cities and mega regions (Suzuki et.al, 2010).

Many of Curitiba urban planning solutions benefited the poor indirectly and directly while consistent utility payments has freed funding for social investment that benefits the poor indirectly. From the start, Curitiba was committed to the articulation of robust local standards in city-plan and was therefore able to generate and craft its own solution for mobility and overall access to the city. The solutions cut across improved governance, social justice, poverty reduction and efficient resource management within their local context but also in a manner that serves as an example for other developing country cities to learn from. Its leaders achieved immense success by pursuing realistic policy choices, such as the use of a surface transport network built on innovations within the already understood bus system and prohibiting the construction of new buildings on environmentally sensitive areas such as the floodplains. The commitment to local values is encouraging; especially because it demonstrates how other developing country cities could to take pride in home grown solutions.

In more specific terms, Curitiba's organisation of transportation is an exceptional model in integrative urban planning. The urban developers convincingly accepted the fact that even if the growing population cannot be slowed or restrained, the development of urban infrastructure can be used to direct the city's growth. By

using transportation as a critical tool to attain a greater solution rather than a passive reactionary solution to an advancing problem, they were able to implement an efficiently constructed, highly responsive and cost-effective transportation system that also meets the additional criteria of being self-financing. Curitiba initially established simple rapid-path system with devoted bus lanes. It then tries to find out ways to expand and spread out the system. Thereafter, it then substituted quite a lot of its downtown streets with extensive pedestrian malls and shopping precincts. The systematic approach to urban transportation has reduced travel times and increased convenience for commuters and visitors a like (Rabinovitch and Hoehn, 1995; Rabinovitch and Leitman, 1996).

The success of the city visions and most of its strategic plans was achieved through existing proven technologies complemented with responsive innovations of new technologies. The solution as used by planners of Curitiba was to acquire new technology from their partners in bulk purchase and in phases, using economies of scale to bring down local prices, at the same time creating public awareness. This encouraged the use of small and medium-scale solutions, adapted to fuzzy situations, rather than a small number of monolithic, large-scale solutions (Layzer, 2010). Overtime, Curitiba has been able to demonstrate that alternative and innovative solutions are possible even when budgets are low. Curitiba achieved many innovative, creative, practical and cost effective solutions with higher benefits than business-as-usual, with the bus system's low-infrastructure-investment as the overriding example (Gustafsson and Kelly, 2012).

Curitiba's people oriented urban planning practices; Curitiba's inclusive governance and leadership approach

The success story of Curitiba shows how governance effort can act and accomplish great strides (if they are keen on it), through political commitment, consensus building and organisational capabilities (see Table 4.1). The 30 year success of its public transport stems from the strong political will and leadership, especially at the time of the three time Mayor, Jaime Lerner, and guidance from a specialised land use and planning unit (Ubanizacao Curitiba SA (URBS), the planning units made up of professional planners and joint effort between the mayor's office, other specialists, universities, state and national government (Pienaar et.al, 2005). With this type of multidisciplinary collaboration, positive government attributes make it easier for local officials to establish productive policy frameworks for designing,

implementing and improving city programmes for the benefit of a majority of the residents. Curitiba thus offers a clear example of a more positive and effective approach to responsive governance in sustainable city transitioning (Sheppard, 2007; Cephas, 2008; Zurita, 2009; Lara, 2010).

Curitiba's all-inclusive approach to sustainable city development

The planning system and process in Curitiba mitigated the rise of privileged perspectives of community power structures (the elites, in particular) to dominate decision-making. Planners were also able to apply incremental adaptations to the first plan in the light of partisan reality emerging out of ongoing interactions with the management and citizens at different occasions. The slow changes to the original plan mitigated the risk for most of the actor-groups and other stakeholders. The adaptations and the resultant reduced risk helped to sustain the necessary coalitions for support in pursuit of the vision.

Planning groups developed equal capacity for political engagement and were thus able to interact with politicians as well as other stakeholder-groups. The interaction was above all a channel for contribution and feedback for all parties involved. Planners then used this feedback, first, to mediate between politicians and other stakeholders thus mitigating the negative implications of power imbalances. If any actor or stakeholder-group remained too powerful, the planning process is unlikely to have succeeded to the extent it has to date (Rabinovitch and Leitman, 2004; Mang, 2009; Lara, 2010; Ribeiro et al, 2010; Macedo, 2013; Clayton, 2013).).

4.3 Abuja City Vision(s): Background and Context Understanding

Contextually, a historical and chronological approach was adopted and supported with other schools of thought on sustainable development, inclusivity and participation in city visioning process in other to effectively analyse Abuja.

The decision to evoke feelings of nationalism in Nigeria was what led to the vision of relocating Nigerian's capital from Lagos to Abuja in 1976. The vision of relocation first began with a leader's concept of an image of the future for Nigeria and was subsequently implemented by other administrators' (both military and civilian leaders) (see Table 4.1) (FCDA, 2015). In the early 1972, when Nigeria was recuperating from the aftereffects of the Biafran civil war, Yakubu Gowon, the then military ruler, initiated the idea of moving the capital from Lagos. Before then, and

for over sixty years, Lagos had served as the county's capital city. In 1975, General Mohammed entered office, and with the Civil War now as a piece of history (but still cemented in people's minds). He set in motion the plan for a new capital and pronounced it into law based on recommendation by Aguda's panel (Elleh, 2001: 93) (see Table 4.2). From the secondary sources, the main vision of Abuja can be summarised as follows:

A vision to serve as a sign of national unity: A city where every Nigerian would partake with a sense of be in the right place, regardless of ethnic origin, cultural affiliation, tribe, economic or social divides. A central site for Nigeria's new FCT was considered appropriate because of the diversified nature of the nation, administrative convenience, and the need for uniform growth and above all the aspiration to nationwide unity (Umeh, 1993; Federal Government of Nigeria (FGN, 1975a & b; FCDA, 1979; Obateru, 2004). The pressing need of embedding nationalism in Nigeria thus motivated most of the reasons identified for the creation of a new FC. However mere recommendations are not totally reflective of the true state of things or socio-political divisions that be present in Nigeria today. Therefore, they resolved that Abuja was fashioned to suit the planned interest of a small number of privileged Nigerians. Coupled with the fact that initially, the leaders and citizens from the western part of the country where Lagos is situated were never in support of the movement from Lagos, which was never unexpected (Nwala, 1997; Alliyu, 2016).

However, at some point, it could be said that a genuine desire did exist to use the new FCT to facilitate nationwide unity and speed up economic growth. Figure 4.5 colourfully shows the site of the new FCT at the centre of the country. It is the first city to be planned and built in Nigeria in a sparsely populated region located at the centre of the nation. But the physical setting of a state or its city does not in effect define whether the people are unified. For Nigeria, the location of Abuja has generated more disagreements between the Federal government and the original indigenous people of Abuja to date. Although in Nigeria, the general population defines nationalism as believing in the country's unity and acting in the interest of that unity. It is about each Nigerian laying claim to the identity as a point of pride, separate from their colonial history. That was the reason why as soon as the authorised physical move to Abuja occurred in December 1991, the relocation was termed as a "dream come true" for all Nigerians (Ministry of the FCT, 1998: 7).

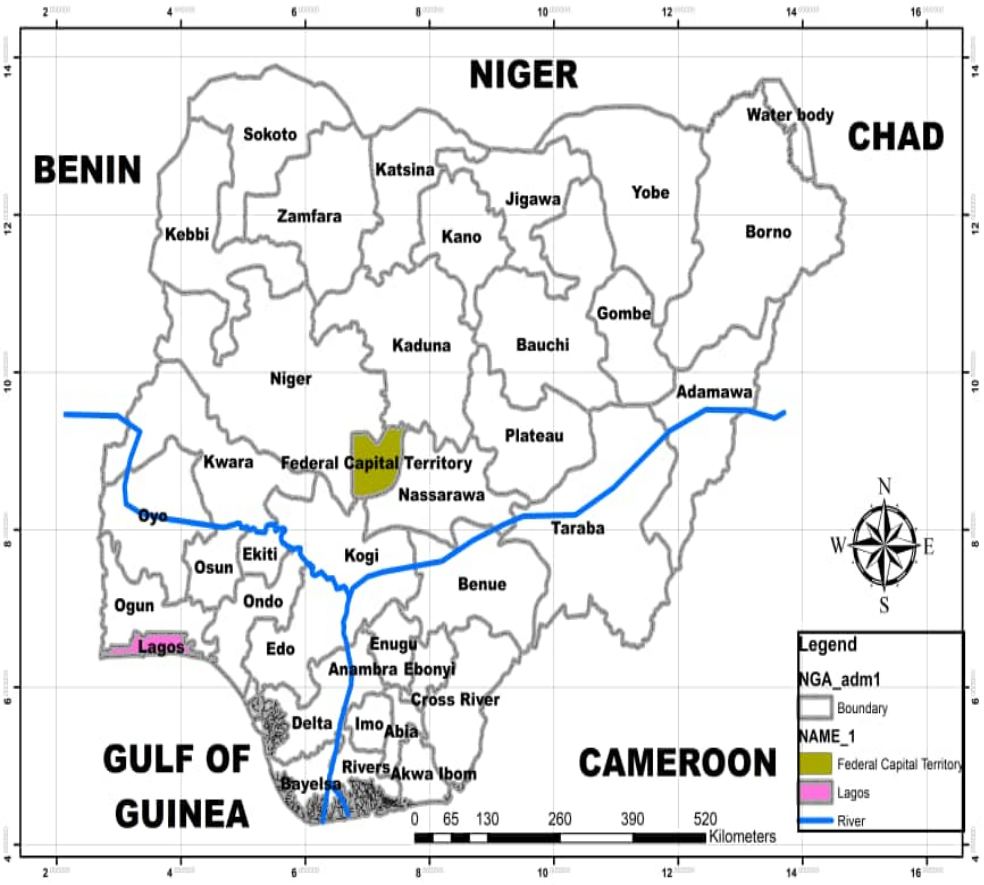


Figure 4.5: The map of Nigeria showing Lagos and Abuja, the new FCT
Source: http://www.appliedlanguage.com

The Abuja visioning process goes a long way to supporting Anderson, (1982), Anderson, (2006, 37) and Anderson, (2015, 24) on the notion of an “imagined community”. This explains how nationalism exists in cities and how its citizens can adopt a planned city and call it their centre for national pride (as was the case with Abuja). Anderson, (1982), Anderson, (2006) and Anderson, (2015) ideas on nationalism rely on the belief that citizens ‘feel’ an automatic connection to their fellow citizens.

For Curitiba, though incredibly difficult, nationalism was seen as a deliberate policy, backed up with consistent pursuit until the feeling of patriotism became an inherent bond—where someone finds it very easy to help a stranger or stop the dumping of refuse on the street. As historical precedents of a good example, Curitiba demonstrates that nationalism, when used creatively as connector, can effectively

facilitate the pursuit of sustainable city visions and related pathways for transitioning.

A vision for a modern capital based on the "garden city" model: The vision to build a modern capital from scratch made it easier for Abuja to be envisioned as a modernist venture imagined in the direction of the "garden city" of Ebenezer Howard (Mabogunje, 2001). This type of modernist project aligns with modernism desire to create a society that is in line with scientific laws, geared towards the desire to create the perfect modern city, void of imperfections and inadequate infrastructure (Scott, 1998). The master plan for the city was framed according to this vision. According to International Planning Associates (IPA), (1979), the philosophy, objective and vision of the development of Abuja as the new FCT was based on seven major principles: equal right of entry, equal nationality, environmentally friendly city, the garden city, well-designed city, effective regional development, and speedy nationwide economic expansion (Kalgo and Ayileka, 2001; Abubakar, 2014). These principles were intended to facilitate the formulation of the master plan and also to ensure that it produced a new city which would be much better than the dysfunctional Lagos (Mabogunje, 2001). But unfortunately overtime, successive governments (both military and civilian) have neglected some, if not all, of these principles, listed above (Olaitan, 2004) and instead, a series of alterations to the idea, approach and execution of the vision and plans have become prevalent today (see exclusionary and inclusionary approaches enumerated in Section 4.3.1).

In 1976, in order to realise the Abuja vision, objective and philosophy, the Federal Capital Development Authority (FCDA) was established with the sole duty of planning, designing and managing the FCT and its territory. By 1977, the FCDA hired a group of American companies, International Planning Associates (IPA), a combined venture of Wallace, McHarg, Roberts and Todd (WRT), to prepare a draft Master Plan for the systematic development of the new Federal Capital of Nigeria and its Regional grid with a target population of 3.2 million people (FCDA, 1979). Kenzo Tange and Urtec Company, a well-known Japanese architect along with his group of city developers, was also carefully chosen to carry out additional comprehensive design of the central area of the capital, particularly its city centre (Kenzo, 1981). The plan had on intended a lifespan of 20-25 years (1980–2000). The masterplan envisaged the capital city as an administrative and service centre

(hence the Federal Capital City (FCC) located within Abuja Municipal Area Council (AMAC) was built in the northern quadrant of the FCT (see Figure 4.6).

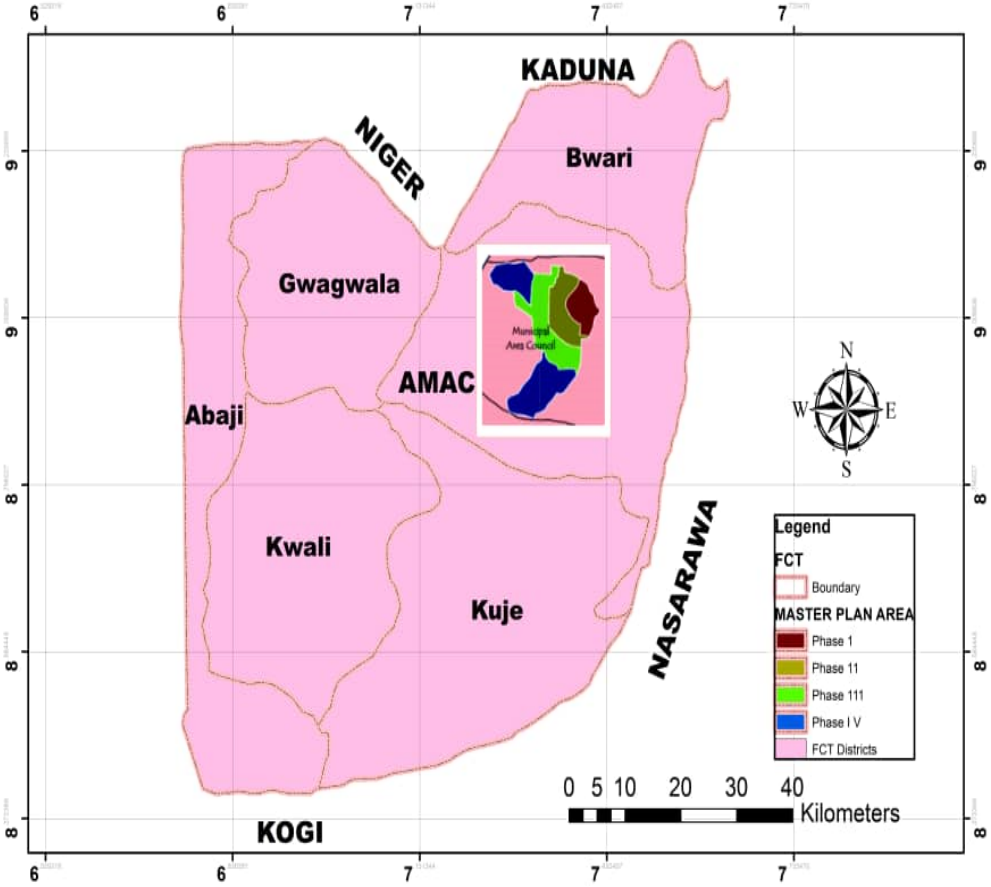


Figure 4.6: Six area councils and the four phase of the master plan development
Source: GIS Lab, Geography and Planning Department, University of Jos (2015)

Since 1976, contributing not only their time, the FCDA has enriched the process with their expertise and also by enlisting the aid of people, institutions and international agencies, and federal and state ministries and departments to represent and serve on its advisory panels.

4.3.1 Pre-sustainability era; participatory approach to the vision (1974-1989)

Between 1974 and 1989, a number of development initiatives for Nigeria were launched on paper by various governments, with the primary objective of raising the country from a third world status to one of the twenty largest and most sustainable economies of the world. The related vision for Nigeria saw Abuja

benefiting from the implementation of several developmental efforts subsequent regimes (under military and post-military rulership regimes-see Table 4.3). In the process of implementing these initiatives, different categories of the a top-down approach were used in implementing the vision of the capital with military heads, civilian administrators, the Aguda committee, city administrators, planning bodies and expatriate consultants playing the dominant roles in decision-making (see Table 4.4). As a result, this translated to diminished inclusivity in decision-making and a weakening in the bottom-up process.

Table 4.3 clearly shows that the initial vision and implementation approach for Abuja was conceptualised outside the criteria for sustainable city development possibly because the paradigm was relatively unknown then even among the experts. The initial city arrangement was founded on the concept of hierarchies of development that would assist city organisation of social, environmental and economic activities. Possibly the initial vision for Abuja could not be predisposed to change by the 1987 Gro Harlem Brundtland's 'sustainable development' concept (WCED, 1987; 63-65) because it was initiated 14 years long after the discourse was launched globally-for any meaningful impact. Given that, the development of the city vision and plan began in 1974 and concluded in 1984, this was a while before sustainability discourse had formally begun in the public domain. The approach to its city structure was therefore strictly modernist rather than integrative. It therefore failed to encompass the concept of multi-objective city planning in a manner responsive or sensitive to economic, social, environmental or cultural dynamic and its changes.

Although Abuja was created with a vision to unify Nigerians and thus mitigate urban problems, such as those experienced in Lagos, the vision areas did not sensitively factor in the cultural dynamics in Nigeria (Aguda, 1975). This disregard contributed to sustainable-city challenges similar to those encountered in Lagos (Osuocha and Njoku, 2012; Bosselmann, 2013; Adeponle, 2013; Elleh, 2014). Jinadu, (2004) further highlights that the city has been recreating the errors it was meant to correct, including the congestion, distortion, over-population, pollution and all manner of chaos and pandemonium, amongst others that characterised the city of Lagos. Jinadu, (2004) further argued that these outcomes of rapid urbanisation have posed enormous challenges to the nationalistic aspirations of the Justice Aguda recommendations and its intention of creating a befitting capital city for

every Nigerian (as highlighted in Section 4.3). Kalgo and Ayileka (2001), Jinadu (2004), Ikoku (2004), Owei (2007) and Okoro (2014) describe the urban transformation and realities of the city of Abuja as outcomes of Master-Plan distortion with clear examples being inequality in the share of infrastructure and services, urban divide and segregation as well as the lack of participation, in the developmental planning process (especially the decision-making stages).

One key example is that the master plan, provided for monitoring the quality of life in Abuja but within a narrow focus on a few aspects, such as the economy, social and environmental dimension in isolation without attending to the inevitable links between the city's economy, society and environment. It is as if Abuja is made of three separate parts - an economic part, a social part and an environmental part that do not overlap. The Abuja vision and planning approach unarguably over-relied on physical planning principles and theory (as elaborated in Section 4.3 above) possibly under the assumption that such principles would spontaneously invoke the type of city-future Nigerians desired (Tobin, 2017). This reflects inadequate exposure and response to sustainable city development principles that require integrated decision-making (just like the case of Curitiba) that take into account the economy, society and the environment, all balancing out into an integrated whole, and influencing each other to ensure equity and a good quality of life for everyone.

Table 4.3: Overview of military/civilian administrations, their ministers and exclusionary and inclusionary milestones from 1974-1989.

FCT ministers	Period	Presidents	Exclusionary/inclusionary practices	Outcomes of specific periods
No formalised institutional structure yet	1972-1974	Military	• Military decide to relocate capital	• Solely military decision to relocate the Federal Capital territory from Lagos
No formalised institutional structure yet	1974-1976	Military	• Justice Aguda's commission report submitted • Resettlement policy • FCT Land use legal framework of 1976	• The Aguda committee after extensive investigation (within and outside Nigeria) finally selected Abuja. The committee failed to recommend more than one site to the Federal Military Government (FMG) to choose, which does not agree with the principles and practice of sustainability by recommending 2 or 3 alternative sites for more inclusive contributions. • The FCT land laws of 1976 authorized the creation of Abuja and complete evacuation/resettlement of the original inhabitants residing within the Territory of 8,000 sq.km2 evacuated (about 845 communities to be resettled outside the FCT). This was never achieved leading to exclusion. In addition, the FCT Act of 1976 conferred control of the whole land mass of the FCT in the authority of Government of the Federation. • The new capital became a representation of Nigeria's goal for unity
Mobolaji Ajose-Adeogun	1976-1979	Military	• Establishment of the Federal Capital Development Authority (FCDA) (1976) • Partial resettlement programme (1978-1984) • Land Use Act of 1978 • The FCDA commissioned a team of US international planning consultants, to prepare a draft Master Plan for Abuja, the FCC (1979)	• FCDA was established with the sole responsibility of planning and building the city, and subsequently managing the greater FCT. • The Master Plan was for the purposes of providing a framework for the orderly development to achieve the dream of Abuja Federal Capital City vision. • Land Use Decree of 1978 which vested all lands in the territory to the President to hold in trust for the common benefit of all Nigerians became necessary because the ideal planning cannot be achieved without adequate land administration tools. • By the time the Abuja Master Plan had been drafted and approved by the FCDA by 1979, the full resettlement plan had been discarded (due to high cost of resettlement) and made optional instead. The partial selective resettlement of residents led to squatter developments, indigeneship politics and slum development FCDA was established with the sole responsibility of planning and building the city, and subsequently managing the greater FCT. • The Master Plan was for the purposes of providing a framework for the orderly development to achieve the dream of Abuja, the Federal Capital City (FCC) vision.

				• Land Use Decree of 1978 conferred all lands in the territory on the President to hold in trust for the usage and shared advantage of all Nigerians. This law becomes necessary because the ideal planning cannot be achieved without adequate and efficient land administration tools. • By 1979, the time the Abuja Master Plan had been sign up and accepted by the FCDA, the complete relocation plan had been rejected (due to high cost of resettlement) and made optional. The partial selective resettlement of human population led to squatter developments, indigene-ship politics and land racketeering and slum development leading to exclusion of residence in the implementation process.
John Jatau Kadiya	1979–1982	Civilian	• Encouraged private sector participation developing Abuja • Integration policy for villages located within the precincts of the FCT territory.	• From 1976 to 1979, there was little or no thought for the integration of the indigenous population. However by 1981 the high cost of relocating the indigenous population made relocation plan a very expensive undertaking for the Nigerian state. Hence in 1984, came the idea of a much cheaper option to integrate villages situated within the precincts of the FCT. • By 1999 only 1,800 units of Shagari's low cost housing scheme was built out of 8 million components prearranged to be built before the year 2000
FCT ministers	**Period**	**Presidents**	• **Exclusionary/inclusionary practices and milestones**	• **Outcomes of specific periods**
Iro Abubakar Dan Musa	1982–1983	Civilian	• 4 consultants submitted report on central area plan in 1981. • Third plan submitted Jan.1983	• The different teams' report together constitute the Abuja Master Plan, as such the Master Plan took the declared nationalistic aspirations of the decree and expounded on them..
Haliru Dantoro	1983–1984	Civilian	• Development of the satellite towns (1984) • encourage the participation of the private sector to come and partake in its development • The five-yearly national housing development plans/Shagari's low cost housing scheme	• For a very long time developmental efforts for Area councils and their satellite towns were neglected with regards to infrastructures and improved quality of life for its residence. Due to the invasion of people looking for employment in the city, led to considerable squatting, particularly in districts adjacent to the capital city thus encouraged haphazard development • The Shagari's Low-Cost Housing Scheme failed to meet target because the existing housing stock was too expensive for civil servants or irregular wage employees in the informal economy. Provision not made for non-civil servants to be accommodated lead to increased unlawful tenant settlements. Virtually all low-income houses provided were located outskirts of the city, where transportation and inadequate basic services are a problem.
Mamman Jiya Vatsa	1984–1985	Military	• Introduced the first ever mass transit in the Capital Territory	• This was the first attempt at carrying out a people and poor oriented development approach using by making available cheaper means of transportation for both the rich and poor in the city.

Hamza Abdullahi	1986–1989	Military	• By 1986 introduced the demolition exercise in the FC using development control standards	• Through development control measures, government and implementing officials used the Abuja development as a prospect to show that Nigerians, can create a well-ordered city. However the military/civilian administrations that were expected to ensure strict compliance failed to enforce relevant development control measures to developing/managing the city.

Source; Compiled by Author from Aguda report, (1975), FCDA, (1976), Kenzo, (1981), FCT, (2002) Doxiadis, (2004) and CORHE, (2008)

Another reason for the unexpected challenges posed by the exclusionary approach as presented in Table 4.3 is the fact that the development of the city was seen by the military's leaders as an expensive project that needed to be completed within a short time. This led to the design and construction becoming entrusted to related foreign firms with hardly any investment in demographic, geological and impact analyses.

This explains the immense role of foreign professionals and investors to the development of the city. It also reflects the possibility that the military leaders did not trust the quality of local expertise and the associated risk of delays which Nigerians employees could pose, thus threatening satisfactorily progress. The military leaders could have believed that such reasons justified boycotting people's inputs in the decision-making processes and implementation even though it meant violating the 2007 United Nations Declaration on the Rights of Indigenous Peoples in decision-making/development process of their communities (UN, 2007). This is a clear indication that the Abuja vision and its implementation was viewed more from a military perspective of expedited roll-out rather than as a civilian project that could be leveraged towards forging the unity that the country craved for then.

However, with the happenings mostly susceptible to the political settings in the country, the urban planning approach and the infrastructure they chose to implement have had a considerable effect on the unity and equality of the city's residents. Worse still, the foreign expert consultants employed were unable to understand the needs for unity and peace as the basis for promoting nationality. Abuja city has now become a replica of a segregated city where the urban poor ends up continue living in the outskirts of the city (within satellite towns which fall beyond the jurisdiction of the FCDA). Due to the strong need of the urban poor to find a place in the city, it was transformed into the fastest growing slum-city in Nigeria. As a result, rapid urbanisation has meant that the city has grown beyond what the initial visioners and planners could have imagined, with barely a fraction of the envisaged infrastructure and services in place.

Figures 4.7 and 4.8 show high levels of inequality exhibited in the development of Abuja. The implication is that the leadership of the city tried to enforce control on the low-income residents living in the informal areas of the city through the use of development control standards which unfortunately, led to spatial distancing and

exclusion (Latessa, 2014). The vision for Abuja required a people-centred approach while ensuring long term benefits for the poor, disadvantaged and marginalised and thus facilitating equal access as well as equitable provisions of infrastructure and service, in order to ensure its environmental, social and economic sustainability.



Figure 4.7: High income neigbourhood at Gwarinpa
Source: Author's fieldwork, (2017)



Figure 4.8: Informal settlement at Durumi neighbourhood
Source: Author's field work, (2017)

However, the master-plan approach was undeniably a western concept which was void of local inputs and was therefore alienating to the Nigerian cultural values which would have encouraged neighbourliness and high levels of interaction among communities (Abubakar and Doan, 2010). The escalation in the level of

inequality in terms of resource distribution, infrastructure development and provision of municipal services among different neighbourhoods and areas of the city has been as argued to be the key to the city's fragmentation and unsustainable urban development (Murray, 2007). More attention and resources have been committed to the development of some neighbourhoods over others, in a manner that is in total disregard of the core principles of the Master Plan (COHRE, 2008).

But above policy reversal, all the contributing factors to Abuja's dysfunctionalities, has been the bane of the development process of subsequent Nigerian governments as a nation with an adverse effect on the sustainability of the city's development efforts. Right after the first policy statement decree 6 of relocating the capital city was issued in 1976, the resettlement policy was made with the initial intention of getting every person residing within the 8,000 km^2 of the territory evacuated and resettled outside the FCT (see Section 1[3], FCT Act, 1976). By the end of 1981, the implementation of the policy shifted to partial-relocation mainly because wholesale relocation proved to be very costly. Integration was therefore deemed to be a more affordable option than resettlement for villages situated within and outside the precincts of the FCT territory. In the new strategy, Garki village was used as a check case but it also failed the test of integration as it transformed into a slum with informal settlements located inside the city centre. This remained definitely not well-suited with the national capital vision and aspiration (Jibril, 2006).

In relation to sustainable urban development the pre-sustainability approaches for Abuja failed primarily on the three counts, of standards and controls that lack realism, a complete mis-presentation or distortion of people's needs and ongoing abuse of available resources. When matched with what is found in most other Nigerian cities, development control in Abuja could be argued to be successful in spite of the strict development control laws and its negative impact on low-income people. In particular, it weakens the ability of the poor from chasing after land procurement within the city and to locate their building at the suburbs of the city and thus integrating themselves into the surrounding communities (Ikejiofor 1997a; Fowler, Huchzermeyer and Idahosa, 2008). The success so far, can therefore be associated with the idea of modernist standard of development preferred by decision-makers, aside from the gaps attributable to the exploited administrative machinery as highlighted in Section 4.3. The success is also attributed to a communal sector control of changing practices in the city, especially on issues

such as such as land supply, unit and allocation; housing and infrastructure delivery, and process and repairs. Over the course of its development, Abuja city has come to represent a clear-cut disparity between the worlds of prosperity versus poverty due to the national leaders' aspiration to mode Abuja into a modernist capital city. In contrasts the city's suburbs and satellite settlements, including Dutse, Bwari, Kubwa, Durumi, Karu, Maraba, Karmo and Nyanya, consist mainly of Informal and squatter settlements that house the city's bulk of the poor who are predestined to a despondent life (see Figure 4.9) (Zubair et.al, 2015). As these communities are now characterised by garbage heaps, squalid odours, clogged drains, exposed sewers, and poorly lit and un-tarred access roads (Abubakar and Doan, 2010; Abubakar, 2014).

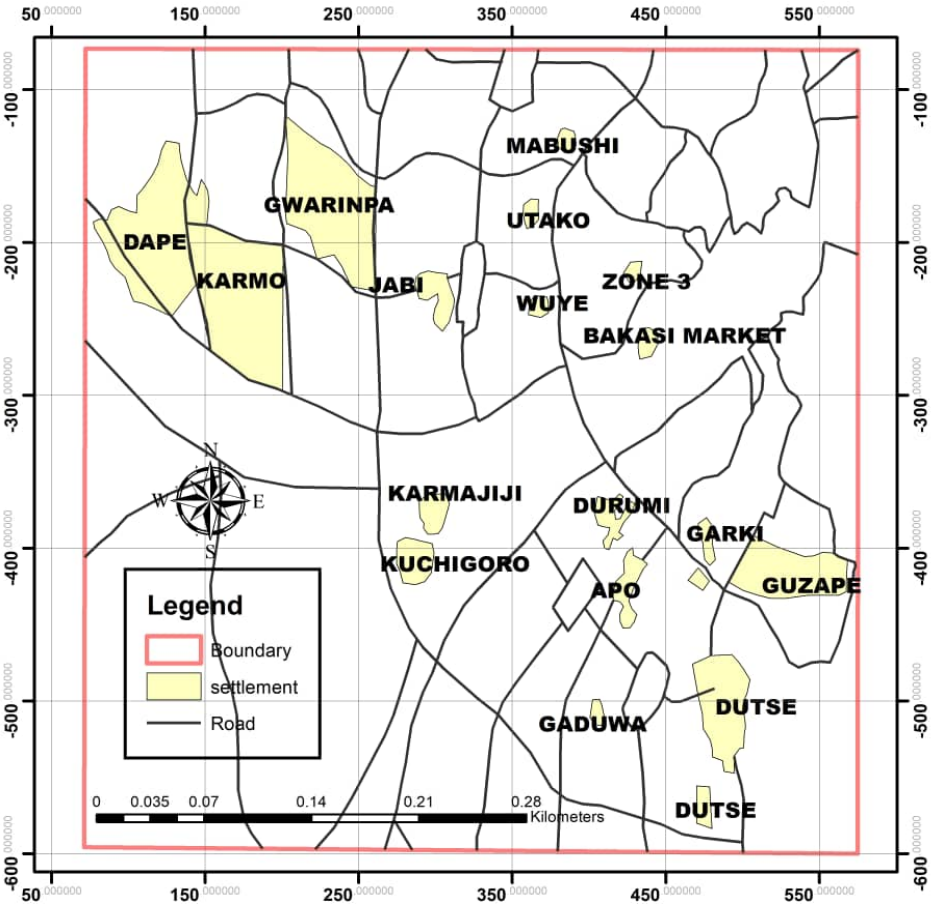


Figure: 4.9: Selected squatter settlements in the Federal Capital City
Source: AGIS, (2006)

The administration's reactions to most of these challenges have remained far from satisfactory especially because its strategies and actions have stayed anti-poor

(with key interventions such as destructions of squatter settlement, distribution of low-cost public houses meant for the poor to the elites, and the prohibition of mini-buses and the road-side meagre trades that are maintained by the poor). These anti-poor strategies and actions validate the claims that planning is used as a means to pursue the poor from the modernist cities of developing countries (Watson, 2009). Even though the poor have demonstrated flexibility from end to end by conceiving several survival strategies within the city's informal and low-cost economy, there is clear evidence that this is not what the city-vision would have aspired to.

UN-Habitat (2010, 2012) suggests that a society cannot be termed sustainable and harmonious if the larger percentage of its population is deprived and marginalised while a minute section lives in opulence. Within such a society awareness or signals towards sustainability are unlikely to result in the transformative change required for sustainable city transitioning. The low density development approach of Abuja further results in extraordinary budget on infrastructural provision, especially for a city relying heavily on federal budgetary allocations with hardly any revenue base of its own.

For the Abuja's poor masses, the 1978 land laws and related development control strategy (as highlighted in Table 4.3). This means that a federal system of government acting through the authority of the minister gives them practically not one valid means to acquire or rent land in the city. The resulting outcome is that thousands of serviced and un-serviced plots allocated to individuals by the city administrators at well below market value (of initial payment of an application fee of ₦100,000 or US$ 650) have been sold and resold on the open market for very high profits (IPA, 1979; Abubakar, 2014).

The expected outcome is the extensive squatting found all over the city. In 2004, the government identified 2,412 hectares of such settlements found in the FC. Jibril, (2006) blames these challenges on the three major policy changes with regard to resettlement, integration and eviction within the FCT, which can be said to be the root cause of the squatters-problem and land administration within the FCT (see Figure 4.10). The housing and limited business situation in Abuja has thus remained as extremely disturbing and discouraging with high rent which renders homes and premises exorbitantly high for the most of the residents.

Under the initial plan, Abuja was intended to be developed in four (4) phases (see Figure 4.6) with the FCC covering 2,500 km^2 out of the total land area of 8000km^2 allotted to the territory. The FCC was gradually to become home to 3.2 million people with another set of 2.6 million residents on the remaining parts of the territory. In all, this entailed a total population of 5.7 million for a land area of 8,000km^2. But today, the sudden explosion of the city's population far exceeds the numbers initially envisaged, with adverse effects on services, housing delivery and infrastructure (see Figure 4.10) (Alao, 2009, Aliyu and Salawu, 2013). Among the factors responsible for the population explosion are cases of members of the National Assembly and their aides staying back in Abuja at the end of their tenure (rather than returning to their various states), due to the availability of better infrastructure and services, employment opportunities as well as, religious and ethnic tolerance, in comparison to other states alternatives. Over time, the consistent population increase and pressure on available infrastructure gave rise to the creation of the satellite towns whose function was to accommodate the rising population (which in the sense of the vision can be considered as surplus) (see Figure 4.10).

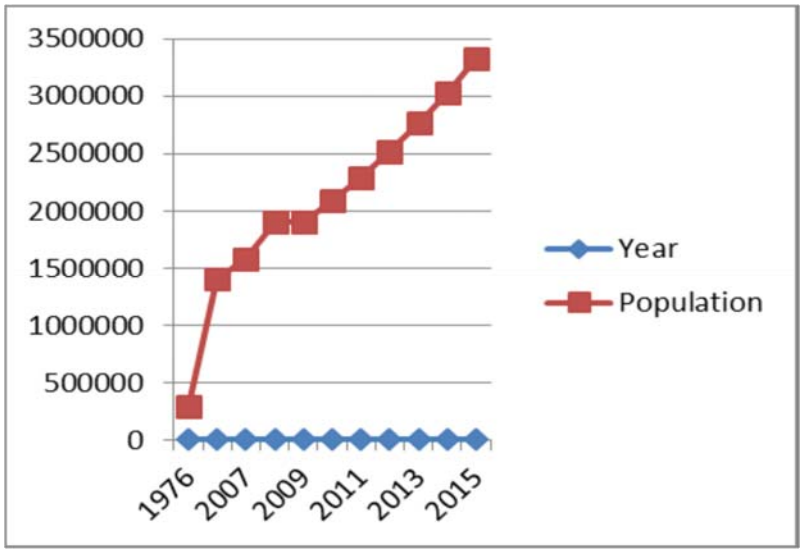


Figure 4.10: Abuja population growth trends (1976–2015)
Source: United Nations Funding Population in Africa (UNFPA), (2016).

In addition to the remarkable growth rate of 30%-40% in just three decades of its existence, the Abuja shares some vital semblances with Lagos. It is most obvious in the growth and number of slums and the rate of waste generation and management, coupled with the fact that not one up-to-date substructure to manage

their waste (see Figure 4.11) (Ogwueleka, 2009; Ayuba et.al, 2013). Refuse dump in both cities is essentially elementary, with heavy dependence on poorly managed landfills. The waste recycling commercial activity is until now not technologically advanced, with little record of private sector effort at Lagos. Abuja is yet to advance such an industry, in spite of being a current custom-built city. The urban evolution in Abuja may well be compared to the status quo in Lagos at the expiration of the Civil War in 1970, where there was unexpected vast inflow of persons to the capital city from war-ravaged cities and communities of the East and other places. Abuja beheld a related fate when the capital city was moved from Lagos in the 1990s. The rising urban problems are fundamentally similar.

At the heart of the sustainable development movement is the idea that economic growth can and should occur without damaging the social fabric of the community or harming the environment. If sustainable development is to occur, the community-at-large must understand and agree that a healthy economy and a healthy environment are both necessary prerequisites for a healthy society (International Council of Local Environmental Initiatives (ICLEI), 1996).



Figure 4.11: Refuse dumps in Karu
Source: Authors field work, (2017)

Some of the satellite towns such as Kuje, Karu and Kubwa were to serve as resettlement centres for the indigenous population relocated from areas under the FCC Master-Plan (Federal Government of Nigeria, 1990) (see Figure 4.12 a & b). The population explosion in infrastructure development has attendant challenges however slowed down developmental process for the towns. This explains why the

FCT within a short history of 42 years, is still unable to provide adequate infrastructure to meet the demands of its ever-growing population, particularly for those residing in villages within area councils and satellite towns (Okoro, 2014).

a)  b) 

Figure 4.12 a & b: Poor road infrastructure at Karu new layout area
Source: Authors fieldwork, (2017)

The challenge of Informal settlement and development led the FCDA to establish development control measures in the use of land and the built environment in pursuit of a set of social objectives, as well as the establishment of acceptable and continued improved standards of living (FCDA, 1986: 1). The control was mainly informed by experiences of somewhat chaotic and uncontrolled development situation in most of the other Nigeria's cities.

Interventions in development control within the FCT had a far-reaching impact on the environment, health, safety, and quality of life of the people (Ikejiofor, 1997), as the city and its environs have undoubtedly experienced spatial, financial, socio-cultural and major transformation. But on the other hand, the control intervention made life difficult for the ordinary citizen since they could not comply with the terms of the rigid control, thus, leading to further environmental disasters and profound hardships for residents with frustrating experiences (such as rush-hour traffic gridlock, inadequate housing and refuse dumps on the streets of the city, informal and squatter settlements, particularly in the satellite towns) (Adama, 2007).

These unintended outcomes distorted the hope of erecting a city from start to finish on a relatively uninhabited expanse of land in a manner that would offer the government and city developers the chance to escape the complications disturbing

Lagos and other cities. To this extent, multiple studies have raised serious doubts about the future of the FCT (Mabogunje, 2001), especially based on the following reasons:

- Adding up the happenings around the vision of relocating the capital, aside from the initial seven principles guiding the city vision (see Section 4.3.2) and substantial financial investment involved, the city has remained as a partially completed cenotaph to utopian ideas mainly due to administrative and policy irregularity. Unfortunately, as soon as each regime completed its terms, the succeeding administration always fell into the habit of making changes contrary from the initial plan as shown in Table 4.3. The military and civilian governments that were meant to make sure there is firm obedience to the execution of the Abuja master plan (especially through enforcing the relevant development controls), failed to do so consistently. Indeed, they did not only consign development control to the back but acted as if there were no such mechanism and instead going ahead to distort and undermine the pursuit of the plans and vision for the city.
- As lofty as government's plan were, they were faced with so many challenges as many targets were not met, particularly those concerned with housing provision. In addition, their approach to housing remained anti-poor as almost the entire low-income houses were built in the fringes of the city, where transport and essential services was difficult to access. These difficulties reflect a significant flaw to the pursuit of the plan or vision of affordable housing for all. However, standard to high-cost houses were professed to be a more appropriate match to the image of the new capital, rather than low-cost houses which could have been within the means of the majority of the residents (Morah, 1993).

4.3.2 Sustainability era: participatory approach to the vision (1989-2017)

The relocation to the FCT from Lagos to Abuja city came into full effect in 1991. At the time of relocation, city administrators still held onto the master plan as the blueprint for the city's vision and development goals or aspiration. The hold on to the master planning approach was because the government still viewed master planning as an important strategy towards achieving socio-economic progress for the city (see Table 4.4). Between 1991 and 1999, the government made several development efforts.

The attempts were particularly in mitigating the housing deficit caused by the rushed movement from Lagos to Abuja primarily through the National Housing Policy of 1991and the National Housing Programme of 1994-1995. In addition, the previously aborted owner-occupier housing scheme was also re-introduced, as well as the construction of other basic infrastructure in the satellite towns, especially those of Gwagwalada. As from 1992, the integration policy provided for local inhabitants to remain in their original locations was re-enacted with Garki District serving as a test ground. Unfortunately, only 1,800 housing units had been completed by the end of 1999. The shortfall in housing at the time led to shanty-towns and slum developments scattered around the city, as residents tried to put a roof over their heads (see Table 4.4).

Likewise, in the quest for sustainable livelihood the city residents (comprising professionals, investors, civil servants and traders) have contributed to the city's development through estate development to individually built residential buildings. Residents also operate various businesses, organisations, transportation services and many other initiatives geared towards ensuring a comprehensive development of the FCT. Education, health and human services are currently provided through public and private-sector facilities. The limited water supply has also been complemented with residents' initiatives such as drilling of boreholes, both for private and public use.

Table 4.4: Overview of military and civilian regimes, their ministers and exclusionary and inclusionary milestones from 1989-2017

FCT ministers	Period	President	Sustainability exclusionary practices	Sustainable inclusionary practices	Outcomes of specific periods
Gado Nasko	1989-993	Military	1990 National Housing Policies Re-location of the FCT from Lagos to Abuja city in 1991 Integration Policy (1992)		The 1991 re-location of the capital and the change in settlement policy from total re-settlement policy of 1978 to integration policy of 1992, all led to abandonment of phased movement, sporadic slum, and squatter settlements and over population.
Jeremiah Timbut Useni	1993-1998				
Mamman Kontagora	1998-1999	Military	Review of the Abuja Master Plan (1998) Revert to complete resettlement (1999) The 1999 Federal Constitution. Re-introduced the aborted owner occupiers housing scheme.		As a result of the complete failure of the integration policy another change was initiated reverting to the previous policy of complete resettlement. This was in 1999. The policy though not changed was however never implemented. The 1999 Federal Land Use Act, vested all land in the FCT in the hands of Federal Government, thus implying that millions of Abuja's poor migrants have no legitimate means to buy or rent land. The unsurprising result is widespread squatter settlements within the FCT.
Ibrahim Bunu	1999 – 2001	Civilian	From Integration to Evictions (2003). From 2003-2007, Vision 20:20 and National Economic Empowerment and Development Strategy (NEEDS) became the growth policy of Nigeria Social Housing Programme (2006) aimed at providing housing for low and middle income groups. 'Abuja at 30' is a housing plan aimed at erecting 1000 social housing units but only 500 were constructed The creation of Satellite Towns Development Agency (STDA) 2004 Privatization (2003) Greater attention was given to the Satellite Towns Thorough review of Resettlement Policy, which saw the revision of valuation, rates for compensation from 1979 levels, and	Privatisation (2003) Greater attention was given to the Satellite Towns Thorough review of Resettlement Policy which saw the revision of valuation rates for compensation from 1979 levels, and enumeration of all squatters and original inhabitants affected by developments in the FCC. Selected resettlement sites for relocating 49 villages by 2006	Vision 2020 is a 10year plan attached to NEEDS II for stirring Nigeria's economic progress onto a path of continued and fast economic development by 2020. The continued review of the Abuja Master Plan in 2005/2006 led to large scale evictions and demolition exercise affecting over 800,000 people directly. This action was seen by the international community as a contravention of both national and international laws. The demerger of MFCT and FCDA began the era of re-consideration of the poor and low income-earners by subsequent government in their plans and development. Privatization became major focus in 2003; with the launched of a pilot scheme on delivery of solid waste in Abuja. Privatisation of waste products was aimed at reducing financial burden on the city administrators and, broadens stakeholders/community participation. The need to restore the Abuja Master Plan and decongestion of the FCC gave birth to the Satellite Towns Development Agency (STDA)
Mohammed Abba Gana	2001 – 2003				
Nasir Ahmed el-Rufai	2003 – 2007				

			enumeration of all squatters and original inhabitants affected by developments in the FCC. Selected resettlement sites for relocating 49 villages by 2006		
FCT ministers	**Period**	**President**	**Sustainability exclusionary practices**	**Sustainability inclusionary practices**	**Outcomes of specific periods**
Aliyu Modibbo Umar	2007 – 2008	Civilian	Re-initiated the forced evictions in 2008 Coalition of NGOS, CBOS and Government Departments (2008) to facilitate inclusivity in both decision-making and development		The Alliance of NGOS, CBOS and Government Departments in 2008 was aimed at moderating the negative effects of forced ejection and demolition on the urban poor within Abuja and stabilise the security situation of the capital city because crime rate had risen to an unprecedented level.
Muhammadu Adamu Aliero	2008 – 2010	Civilian			Same as above
Bala Mohammed	2010 – 2015	Civilian	Abuja Millennium City Project was one of such projects. It was planned to be a major distinct private venture on housing in Africa		Was never implemented due to change in governance and administration
Mohammed Bello	2015 – date	Civilian	Change Agenda		By 2017- the time of this study most developmental projects inherited from past administration were stopped, banned or revoked due to policy reversal exercise with the aim of ensuing transparency and effective development of the FCT.

Source; Selected compilation by Author from FCT, (2002), FCTA, (2007), Center on Housing Rights and Evictions (CORHE), (2008)

a)  (b) 

Figure 4.13 a & b: Borehole water supply at Mpape neighbourhood
Source: Researchers field work, (2017)

Figure 4.13 a & b demonstrate the extent residents go to accessing water for their daily domestic chores. It suffices to note at this point that, the attempt by residents to provide for basic amenities as a way of coping with the development shortfalls and the absence of quality systematic co-ordination cannot be termed as participation. It was not until 1999 (after the Nigeria state fully transitioned from military rulership to democracy), that the federal government began to develop strategies that incorporate sustainable planning interventions with some elements of a participatory principles in governance. An overview of some selected examples of these plans based on the vision of the leadership, their premeditated policies and development intervention are highlighted in Table 4.3. The effort to restore the fundamental principles of the city's vision thus also initiated began the era of re-consideration of the poor and low income-earners by subsequent governments in their plans and developments for the city.

One major reason was to address the growing gap on exclusion of low-income-earners and indigenous people from owning decent housing and shelter within the FCT. Since then a number of development initiatives have been launched, both "on paper" and in real implementation. For empowerment, various NGOs came up with multiple plans to empower the residents of the city who are not gainfully employed. Public and private partnerships were reached in order to combat the security and environmental problems around the city.

Between, 2003-2007, Nigeria's Poverty Reduction Strategy (NPRS) was converted into NEEDS (one of Nigeria's poverty decline programme), with emphasis on community participation in governance issues. The strategy prioritised two approaches of past growth programmes that needed to be reformed: heavy dependence on oil proceeds to finance the programmes and deficiency in participation by the population in governance and decision-making processes at different levels. Through several initiatives under the programme, women, men and the youth benefited from training and skills development, as well as mentorship in business development. Most of the approaches used began to include social agendas such as decline in the rate of poverty, education, wellbeing, housing, women and youth empowerment, protection of children, sport, peace and safety. The practice of some of these new approaches led to an improved relation between the different levels of government; the federal, state and local levels and the enhanced relationship between the government and the public, volunteer organisations and indigenous communities at large (Gbadegesin and Ayileka, 2000; Gbadegesin and Aluko 2010)). Also included were strategies such as Millennium Development Goals Strategies (MDGs), reforming government and institutions, as well as growing the role of the private sector, primarily through Public Private Partnerships (PPP), amongst other strategies

In 2002, after reviewing the housing policy with regard to low-income earners, a new housing and urban development policy was launched in 2003 to address housing provision through several housing schemes (ranging from 2-bedroom bungalows, resettlement flats, units of terrace houses and apartments on owner-occupier basis) distributed across several neighbourhoods of the FCT. The diverse bottlenecks facing the implementation of the Land Use Act of 1978 were motivated for a review of the act as it was limiting access to land and resulted in indigenous people losing rights to their own property.

Between 2003 and 2007, FCDA refocused on the development needs of the FCT in several areas; privatisation became the primary focus from 2003, especially following the launch of a pilot scheme on the management of solid waste in the city. The programme was aimed at facilitating stakeholder and community participation in order to ensure sustainability and as a way of significantly promoting privatisation.

Planners therefore called for the development of more satellite towns to provide homes for new migrants and thus decongest the city centre through directing development to other parts of the city. As part of the effort marking the strides of the changing socio-political topography of Abuja, the decongestion programme was expected to decentralise the city's population and economic activities to new the areas. In response, by 2003, ten (10) new satellite towns had been opened. They include Bwari, Karshi, Kubwa, Dobi, Kusaki-Yanga, and Kuje. The then defunct STDA was therefore reinstated in order to fast-track development in both the area councils and satellite towns through the provision of infrastructure for the increasing number of rural dwellers. On the other hand, the Federal Capital Towns Development Agency (FCTDA) continued to focus on the development of the FCC in a bid to give Abuja a new character and direction (FCTA, 2007). The STDA was governed by the FCTA with the mandate to undertake administrative/development responsibility outside the territory of the FCC. However, the FCTDA was not able to acquire direct funding from the National Assembly for the STDA, primarily because the FCT Act only recognises the FCDA and not the STDA. In practice, the STDA therefore works under the Department of Urban and Regional Planning of the FCDA. Whereas, it can be argued that these new towns and residential areas still remain under the development and management responsibility of the FCDA, this runs against the wish of FCTA because the local area councils lack the necessary capacity/resources to effectively manage or maintain their development.

Between 2003 and 2007, the FCDA also ordered mass demolition of businesses and homes in Abuja in an attempt to reinitiate a fresh cycle in the implementation of the Master Plan, particularly in those areas where the local planners believed that land had been misallocated or improperly developed (see Figure 4.14). The main eviction period (between 2005 and 2006) affected approximately 800,000 people directly. This action was seen by the international community as a contravention of both national and international human rights (UN-Habitat, 2007). In particular, it was argued that the FCDA did not adequately consult with communities or seek court orders before evictions, nor did they provide adequate, formal notice before evictions or provide compensation or resettlement to those evicted.



Figure 4.14: Demolition at Mpape neighbourhood
Source: Vanguard Newspaper, September 25, (2012)

The evictions left residents homeless or living in overcrowded households and thus vulnerable to further human rights violations, such as physical violence and rape (COHRE and SERAC, 2008: 39). This reflected the ongoing inadequacy in the participation process in the implementation of government decisions, thus raising serious social justice concerns under the sustainable city goal or vision.

In late 2005, after a public outcry, the government started a Revised Resettlement Policy (RRP) by initially revising the valuation rates under the 1979 compensation programme. The initiative started with the enumeration process of evicted victims and subsequently offered them access to plots of land within designated relocation sites. In addition, a new resettlement site was identified for relocating 49 villages which were slated for relocation outside the city by 2006. In line with this new policy, a new mass housing scheme was proposed for construction by the Federal Housing Authority (FHA) in partnership with FCTDA Private Sector Operators (PSO). The requirement for the partnership was that 5% of the houses had to be allocated to the poor. Funding was to be provided by various entities such as the National Housing Fund, co-operatives and home loans, the Government Revolving Fund and the private sector (Akeju, 2007; Ademiluyi, 2010).

Since 2008, a more positive approach to the situation of those facing forced eviction in Abuja has emerged. In order to achieve this, a team headed by UN-Habitat and comprised of NGOs, CBOs, and government departments has collaborated towards the mitigation of the impacts of forced evictions and

demolition of homes owned by the urban poor within Abuja. In particular, amongst the collaborating entities were Nigerian organisations, such as Women Environmental Programme (WEP), Community Action for Popular Participation (CAPP), The Greater Abuja Indigenous Assembly, Social and Economic Rights Action Centre (SERAC) and Centre on Housing Rights and Evictions (COHRE), and others. These organisations not only adopted a participatory plan for addressing the problems faced by the poor who were displaced and affected by the demolitions, they were also able to raise international attention towards the on-going forced evictions and rights violations (UN-Habitat, 2007a; 2007b). They advocated for a halt to the evictions until the FCDA could produce a plan and reach an agreement with affected people on how to implement the master plan in a way that would not violate human rights. The team advised the FCDA on a social housing scheme called 'The Abuja at 30 Housing Scheme' of which, as at 2007, only 500 units were completed out of a 1000 units planned for those affected by the evictions. The houses were sold eventually in the open market, and as a result they turned out to be unaffordable for the poor. Since 2003, little progress has been made after the mass demolitions, as only a handful of those evicted have been able to access the schemes out of the over 800,000 victims and even fewer have been able to afford to build new homes (as per estimates by COHRE in 2008). In addition, none of the envisaged large-scale pro-poor housing schemes has been implemented by 2017.

Through the intervention of WEP activities over the years, CBO's and associations such as profitmaking motorcycle riders, women groups, scavengers, market women association, farmers, evacuated and ejected persons have come to be associated with the Federation of Urban Poor (FEDUP). The FEDUP functions as a home-grown network innovation for enhancing developmental matters/process amongst the above listed CBOs and associations within the territory (WEP, 2007). Between 2007 and 2010, the FG (Federal Government) was able to re-enforce the city development objectives as stipulated in the masterplan, but this time using the rule of law with the determination to inject community spirit into the city through dialogue. This marked the beginning of a more meaningful approach to participation of stakeholders in decision making in implementation of Abuja's development programmes. It was the conviction of the FG that it is possible to construct for Nigeria, a capital that is people-centred not just in architecture but also in governance (COHRE, 2008). The FG particularly took significant steps to

ensure that residents of the territory enjoy good quality social amenities especially in the area of education, health and the environment through Public-Private-Partnership initiatives, thereby promoting another dimension of inclusivity. Good as this new thinking, may sound, the FG still continued with forced evictions in 2008, where residents of Gosa Sariki and Gosa Toge were evicted (COHRE, 2008).

In 2010, the FG again conceptualised a long-term plan to nurture Abuja into one of the best 20 capital cities in the world by the year 2020 and the mission was to provide adequate infrastructure, services, and administration that would stimulate the city's growth (FCT Administration, 2013). In the light of this, several projects and programmes were put in place the first steps entailed the breaking of the vicious-circle of land racketeering which in turn, allowed for the upgrading and repositioning of land administration in the territory. In 2010, the FG equally recorded tremendous achievements through the PPP arrangement in diverse sectors, such as agricultural development and railway modernisation (through construction of the first phase of the Abuja Light rail with a capacity for 700,000 passengers daily and the second phase of the Abuja Railway connecting the ever-busy Nyanya-Mararaba axis), unfortunately this plan was never implemented subsequent to the change of government through the 2015 election.

In order to address the challenges posed by the rapid population growth such as shortfalls in education, health, security and crime-prevention). An initiative named "Land-Swap" and the Abuja Millennium City Project programmes were introduced in late 2012 with the objective of facilitating partnerships with private investors in the development of the city's housing and infrastructure through site-and-services schemes. The projects were to be handled by a consortium under the incorporated name of Nigeria Centenary City Plc, which was strictly a PPP initiative between FCTA and COHART Group. The project was strictly under FCTA's control and supervision.

This initiative was intended to avoid a repeat of the problem of undeveloped plots in some districts in Phases II and III due to the inability of the government and allottees to provide the requisite infrastructure (Jiriko, Dung Gwom and Wapwera, 2014). The purpose was to create a sustainable new city that would be better than the present Abuja through combining and harmonising social, economic, cultural and environmental factors in conformity with international standards (Jiriko, Dung

Gwom and Wapwera, 2014). The city was to be developed at no cost to the Federal Government. The FCDA was to be actively involved only in the monitoring of the programme to ensure it complied with the Abuja Master Plan and also to see to the speedy delivery by 2019 because all terms relating to financing and technical capabilities (as required by the Federal Government) had to be met. Unfortunately, due to changes in administration subsequent to the elections (in 2015, the project was put on hold. Currently, communities have started encroaching onto lands that had been earmarked for the project, thus posing serious uncertainty on its implementation as planned.

4.3.3 Critique of the participatory exclusive and inclusive approaches towards implementing the Abuja city vision in relation to Sustainable City Development

As earlier noted, visioning processes should demonstrate an explicit focus on sustainability principles in order to encourage future urban development towards sustainable outcomes and practices, as seen from Curitiba approach (see Section 4.2.1 and 4.2.2). Based on this review, a list of quality criteria's in Table 4.4 were used in assessing the inclusiveness and participatory approaches for Abuja, as well as the physical implications within the context backcasting for sustainable city transitioning. The assessment is aimed at deriving a finding on the participatory process could be deemed to have enhanced inclusivity in decision-making, quality consultation and effective communication towards a sustainable city future for Abuja city.

Hence from the general overview of the participatory process assessed, it was found that the participatory approach had 149x 'No' points and 54√ 'Yes' points, indicating that participation and inclusiveness was not adequate enough to serve as a reliable anchor for sustainable city development for Abuja. Instead, the key findings is that the methodological approaches used in developing the city was more of top-down approach from the onset with the use of experts and international or foreign professionals with little or no input from the citizens (see Table 4.5).

Even when the process started to consider the inclusion of the residents in decision-making, it fell short of the ideal approach to inclusive participation, as recommended by the United Nations in 1999 (see Section 2.6).

Table 4.5: Participatory attributes in the approaches to the Abuja vision(s) from 1974 to 2017

Data Parameters/Criteria	Approaches used in implementing the pre-visioning stage during the pre-sustainability era (1974 -1989)											No	Yes	Approaches used in implementing the post-visioning stage during sustainability era (1990-2017)													No	Yes	Yes		No	
	Military decision to relocate capital	Justice Aguda commission report	Federal capital development authority	Abuja land use legal framework	International consultations	Rationale behind Abuja as FCT	Master plan project/city design	Resettlement programmes	Low-cost Housing programme	Creation of Satellite town s	Development control strategy	x	√	Integration programme	From integration to evictions	Relocation from Lagos to Abuja	National housing policies	Privatisations	Social housing programme (2006)	Satellite town development agency	Revised resettlement policy	Vision 2010/Reforms	Coalition of NGOS/CBOS (2008)	Land swap initiative/centenary city	Change agenda /reforms	x	√	Total (1974-2017)	100%	Total (1974-2017)	100%
Effective and broad citizen participation in decision making	x	x	x	x	x	x	x	x	x	x	x	11	00	x	x	x	x	√	x	x	x	x	√	x	x	10	02	02	3,71	21	14.10
Quality citizen consultation	x	√	x	x	x	x	x	x	x	√	x	09	02	√	x	x	x	x	x	x	x	x	√	x	x	10	02	04	7.41	19	12.75
Quality communication	√	√	√	√	x	x	x	x	x	√	x	06	05	x	x	√	x	x	x	x	x	x	x	x	x	11	01	06	11,11	17	11.41
Good urban governance recognised by inclusive decision	x	√	√	x	x	x	x	x	x	x	x	09	02	√	x	x	x	x	x	x	x	x	√	x	x	10	02	04	7.41	19	12.75
Equitable impact of plan on social transformation	√	√	√	x	x	√	x	x	x	√	x	04	05	√	x	√	√	√	√	x	√	x	√	x	x	05	07	12	22.22	09	6.04
Policies that allow citizens to improve their economy with resultant physical improvement on the city	√	√	√	x	x	√	√	x	x	√	x	04	06	√	x	x	x	x	x	x	x	x	x	x	x	11	01	07	12.96	15	10.07
Strategy that allows the city to promote growth	√	√	√	x	x	√	√	x	√	√	x	07	03	√	x	√	√	x	√	√	x	√	√	√	x	04	08	11	20.37	11	7.37
Regardless of ability or disability citizen have right to equal participation in the built environment.	x	x	x	x	x	x	x	x	x	x	x	11	00	x	x	x	x	x	x	√	x	x	x	x	x	11	01	01	1.85	22	14.77
Offers resident opportunity to be directly involved in shaping their own environment in ways that meet their own needs	x	x	x	x	x	x	x	x	x	x	x	11	00	√	x	x	x	√	√	√	x	x	√	x	x	05	07	07	12.96	16	10.74
Total												72	23													77	31	54	100	149	100

Source; Selected compilation by Author from FGN, (1976), UN-Habitat, (2007), United Nations Human Settlements Programme, (2011), Elleh, (2012: 93), Adeponle, (2013).

Even long after ‘Our Common Future’ (WECD, 1987: 63-65) concluded in its outline of sustainable development that the realisation of any vision also required a political system that secures effective citizen participation in decision-making and an administrative system that is flexible and has the capacity for self-correction, there is still a lack of political commitment or willingness on the part of the Abuja government to share decision-making and residents of the city

In the general governance of Nigeria, there has been no defined practice of participation or systematic knowledge of what participation is and what participatory planning entails. As a result, most government decision makers seem to think that merely informing the public means they are applying participatory approaches. This could be attributed to the fact that soon after the country gained independence in 1960; it fell into military rule for over 30 years such that within that period participation would have been viewed as entailing political risk of question the central authority

Whether a vision begins as a leader's personal idea or as group's consensual image of their desirable future, is important to ensure that some form of sustained participation are engaged at envisioning and implementation stages. At a fundamental level, at conception the Abuja vision originally conceived by the military as the best pathway to a unified country at the time as against the civilian standpoint, based on two major points, as earlier discussed in Section 4.3. By its very nature, the visioning process constituted the projections of a desired future anchored on a desired outcome and national objectives canvassed by the military leadership and the political elite of Nigeria. The city was therefore, born of contradictions because military priority played out prominently, especially in site selection and the initial translation of the vision into reality. The vision therefore was borne outside of a consensual approach as an essential ingredient for any shared vision of a community, nation or country.

From the archival documents appraised in this chapter, the vision for Abuja only began to develop potential for a common desirable future after leadership expressed the need for the city as a symbol of unity and greatness for Nigerians. In essence, the sense of collective ownership of the vision was never pursued. Given that governmental process of any key policy or decision needs to be subjected to legitimisation especially through the representative process. The

acceptance and pursuit of any vision depended on a collective consensus within the leadership and the broader population.

As presented in Sections 4.3.1 and 4.3.2, in the case of Abuja, citizens have merely participated in development initiatives as individuals, companies, organisations, estate developers and potential developers desiring to start the development of plots of land allocated to them. In contrast, most of the development control process is carried out by the FCDA, STDA and the Plan Registry of the FCDA with minimal input or feedback from the citizens. The key sub-finding therefore is that the utopian approach (initially by the military) did not take into cognisance the needs of local people, which thus meant the implementation process created several challenges which should have been anticipated. For example with regard to resettlement and re-allocation process, the FCTA claims that the resettlement implementation processes were participatory in the sense that:

- residents were invited by the FCTA for a dialogue on the need for relocation
- existing structures were enumerated to determine the number of households in informal settlements
- all communities to be removed were given alternative plots of land in planned settlements with legal documentation and with all development control fees and taxes waived

But in actual sense, since the plan assumes that the original indigenes had to be relocated at government expense, the inhabitants were left with no choice but to accept to be re-located outside their habitation, not minding the severe impact this movement would have on individual, family ties, tradition and disruption of their economic livelihood (Jibril, 2006).

As discussed in Section 2.5, one of the major benchmarks in backcasting is to develop a future vision with conscious inputs from experts as well as, self-governing, or a premeditated process involving interested parties and residents. The conscious and deliberate participation by all actors in Curitiba's visioning process serves as a very strong point as to why it has evolved to become a globally recognised sustainable city today (see Section 4.2.1 and 4.3.1). In contrast, findings from available literature and archival documents show growing challenges and major deviations from the unified structure of Abuja which was meant to espouse/reflect the shared values within the city vision as development was to

unfolded. The findings provide more clarity concerning the exclusionary issues centred on access to infrastructure and services, housing provision and the inconsistency in the implementation of the master-plan and development framework. The master plan also showed serious social exclusion (as substantiated under Section 4.3.1 and 4.3.2) especially in relation to the city's neighbourhood design. This exclusion stems from the spatial differentiation of residential districts under the Master Plan as well as its designation (in Phase 1) of the central area that serves as the seat of the Federal Government.

This area has consistently received top priority in the provision of adequate infrastructure and amenities at the expense of other areas especially those where poor residents are located. The presence of exclusion in Abuja is further escalated by the continuation of a legacy of colonial urban development and divisive urban form across Nigerian cities in general, based on selective modernist planning processes of urban development. Currently, the rich and political elite mainly live in the exclusive district of Maitama, Asokoro and Wuse II, while the middle-income and other senior government employees reside in Garki and Wuse I districts (developed in Phases I, II and III) and the poor live in the city's squatter and satellite settlements. Ikejiofor (1997b) contends that there was lack of realism, complete misunderstanding of people's needs and poor use of available resources and hence the need for more and equitable access to basic infrastructure and services for all Nigerians in the FCT. If this challenge is effectively addressed, many of the urban-crises affecting the city could be more systematically mitigated.

Likewise, the approach towards the provision of infrastructure and housing for Abuja city in the last two decades has been dependent on the Public-Private-Partnership initiatives (PPP) (Ukoje and Kanu, 2014; Dominic et.al, 2015) which often result in unaffordable housing opportunities. Presently the utilised model has emerged as one of the strategies towards securing foreign investment, promoting international attraction and indeed signalling a new economic awakening and pride for the country. The government's lack of available resources forced it to embark on extensive infrastructure and service delivery, based on collaboration with private investors through the public-private partnership to enhance a strong political and economic base for the city and the country at large.

Umoh, (2012), as well as Ukoje and Kanu (2014), have posed differing views on PPP experiences in Nigeria with clear findings for and against the presently utilised

models. They see the model/programme as a negative policy and control system with a disconnect undertone which results to cutting-off the major population concentration thus leading to subdivision, segregation, forced eviction and social inequity. The two studies also argue against the results of the public-private-partnership (PPP) and its policies based on the Nigerian and Abuja urban development context, as it facilitates community power structures which are unfairly influenced by business and political interest especially through major urban planning decisions.

Nevertheless, through its urban development institutions, the government supports the position that private-sector role/contribution is needed due to critical resource- and infrastructure-deficits in public-sector. The private-sector role is achieved through the 'Land Swap Initiative' programme (as earlier discussed) which has been argued to be based on successful global standards with experiences from China, Japan, France and Germany. The additional expected return is enhanced foreign investment and the creation of jobs (Odemiqwe, 2014; FCDA, 2015). However, the Land Swap initiatives for Abuja were never implemented due to change in regime after the 2015 elections.

As discussed in section 4.3.2, in the last two decades, the idea of community participation began as the most important strength in policy-making and administrative view since 1999 (when democratic or civilian governance fully came into play), when compared to the prior participatory approach as the effect of community participation became more pronounced, it has come to mark the beginning of a more stable democratic government in Nigeria. This tally with the finding on participation as observed from the study field work as indicated in Chapter 6, section 6.5. However, from 2000 to date, gradual, but remarkable progress has been achieved in community relations, as a lot of NGOs, CBOs and religious organisations are now being engaged in decision-making. Most of the planning initiatives intended to stimulate participation of community in policymaking were launched on paper. They include the initiation of the NEEDS (at the national level), LEEDS (at the local level) and FEEDS (within the FCT). Although participation was not explicitly mentioned at the national level (as evident from archival documents reviewed) one of the aspirations under good governance implies participation of the community in policymaking, but this is more for implementation at the local level. Even though FEEDS was developed for the FCT,

it lacked concrete programmes specifically targeted at the local participation in decision-making. The acceptance of this new method led to the establishment of the innovative transactions between the different levels of government, state and the public as well as local communities (Gbadegesin and Ayileka, 2000).

In addition, participatory practices and processes have not yet been mutually defined, especially in terms of what it means and how it could be meaningfully pursued. Full participation entails more than merely informing the public, as currently being practiced or understood in Abuja. Recently, there has been proliferation of so many interest groups, particularly those based on activism focused on a limited agenda rather than on the basis of a broader consensus across interest groups or stakeholders. Often, the issues raised by such activist-groups are irrelevant to the evolution of a broader citizen consensus, thus hindering the potential benefits accrued to the common resident within the city. In as much as this section tried to unravel the challenges to the Abuja vision in participation and inclusion as evident from archives, as well as supporting literature and policy documents reviewed. There is clear evidence that most of the approaches used in implementing the vision between 1974 and 2017 demonstrate a critical gap and absence in inclusive participation from the perspective of backcasting and its future-visioning processes.

This was clearly the primary approach used in conceptualising the vision and implementation process for Abuja from 1976-1989. For instance, a classic timeframe used in quite a lot of backcasting studies for future vision is 50 to 75 years. Curitiba shows very strong positive affiliation to the backcasting timelines of 50 to 70 years with regard to their visions, evaluation and implementation process. This time horizon is appealing because it is both realistically far enough to adjust to major changes in knowledge and life style (as it extends into two to three generations). In contrast, the development of Abuja was to be based on the implementation of the Abuja Master Plan over a 25 year long-term guidance from 1976 to 2000. Such a brief period is not adequate for allowing time for implementation that would also be responsive to the possibility of unforeseen constraints and uncertainties. By the time the Abuja Master Plan was drafted, approved and implemented by the FCDA, numerous changes had already overtaken the city plan and even its underlying vision.

In conclusion, this calls for special attention and focus on an efficient participatory implementation tool, particularly in addressing the utilisation of participatory-based backcasting approaches to sustainable city challenges, such as those facing Abuja at the moment. However, the effectiveness of the approach requires a mix of both top-bottom and bottom-up participatory approaches in order to develop mutual trust between citizens and the government and also to increase citizens' involvement in the visioning and implementation phases of the vision (see Chapter 5). Drawing from the lessons learned from the Curitiba case, it has become necessary to increase understanding on the value of participation in planning for sustainable futures more broadly, especially based on a host of criteria where citizens have a right to:

- full explanation of information on which public decisions are to be based;
- a mechanism to express decision-makers their reactions to the actions being taken
- inform government of citizens' needs in order to meet such needs in a more responsive manner
- ensure sustained citizens' influence on the pursuit of the city's future
- embed and enhance mutual trust between citizens and the government
- attract bottom-up support for local activities and investments
- increase inclusivity and in the plural forms of knowledge and citizens' involvement in the implementation of joint projects as well as the duty to participate and make decisions in planning for their better futures

The above should be part of the major change in accepting public participation in decision-making deliberations, as one way of improving the value of participation, rather than merely aiming at representation as substantiated in Section 4.3.4 and 4.4.3. For a proper review and agreement process to happen, not only must an all-encompassing section of the public be involved in the discussions towards the decision. But also these participants must be effectively prepared with the practical knowledge or understanding of the process in order to participate in an unbiased and active manner.

4.4 Conclusion: Planning for Inclusive Sustainable City Pathway for Abuja City.

Drawing from the insight obtained from the challenges and successes recorded by Curitiba, its achievements show constituency in political will, high levels of institutional leadership, and strong networks as well as realistically planned implementation phases. Curitiba was exposed to an enabling environment strengthened by an effective legal framework, all of which enabled translation of sustainable development ideals and goals into practice (see Section 4.2.1 and 4.2.2). The city mayors and municipal authorities had the power to determine their own future and they were able to make decisions independently of the national government and national government officials do not seem to have directly interfered in local politics of the city.

The above method has become important if the anticipated sustainable community aspiration for Abuja Federal Capital Territory future is to be effectively implemented by the appropriate authorities. Many of the negative encounters discussed earlier threaten the ability of Abuja city to become a practical sustainable urban development example in Nigeria. Inadequate access to, and ineffective use of public services, gaps in governance as well as financial insubstantiality and the damage imposed by lack of consistency and continuous pursuit of the visioning experiences in Abuja, demand an integrated and coordinated response at all levels of decision–making in the city. Generally for any change of any kind to take place, there is a need for major leaps forward based on realistic strategies. Based on the comparative review for Curitiba versus Abuja, a list of criteria for creating sustainable city visions with inclusivity as key goal, was drawn as follows;

- Visions alone mean nothing if they are not consistently pursued and implemented to transform the Nigerian social order, towns, and localities toward sustainability. This is because, urban futures today tend to be more dystopian due to escalating risk in environmentally friendly collapse, and business-as-usual predictions that defy the attainment of progress within cities (Intergovernmental Panel on Climate Change (IPCC), 2014). As such there is serious need for proactive visioning that provides incentive, target and direction towards the transformation of Abuja City. Such visioning processes create prospects of bringing communities together to generate a shared vision, or

even to create diverse visions within which the primary conflicts can be revealed and cohered (McPhearson et.al, 2013). As a result, there are needs to be ongoing involvement of all stakeholders in the re-visioning of Abuja city in order to proactively avoid the dysfunctionalities that have continued to characterise Lagos city to the point of rendering it unfit to serve as Nigerian FCT

- Curitiba's success in governance and city administration is tied to consistently electing quality leaders as mayors, and officials unlike in the case of Abuja. Engaging experienced professionals to draw a plan devoid of proper follow-up by the people, who are going to execute it, constitute one of Abuja's major shortcomings. That is why so many policies remain on the shelf. The people responsible for executing them neither do not understand them nor have faith in them.
- Crafting sustainable city visions through participatory processes accomplishes a key purpose in research, planning, and administration. As it facilitates for a collective direction for developing transitioning approaches from the status quo state to a needed future state, and also to assess growth along the prioritised path. Participatory processes that are inclusive, multiple in scale, varied, and representative are therefore needed to move away from mere collecting information from people to meaningful engagement of the populace. Which also requires moving past overriding practices of compromise to an honest and knowledgeable intervention processes in pursuing a sustainable city vision for Abuja as enumerated from the Curitiba experiences in Section 4.2 and 4.3
- Sustainable development in growing cities of developing economies like Abuja requires investment in infrastructure such as roads, water, electricity and services such as public transportation and health care. Drawing from the experiences of Curitiba, advancing investments in green industry can create employment for the youth in Abuja. Likewise, venturing into the manufacturing renewable energy as well as improvement in waste collection and recycling systems and improved efficiency in the use of critical resources such as electricity and water set up some of the urgent interventions for evolving of sustainable city goals
- An integrated approach to visioning and inclusivity has to be centered on a comprehensive view of a city's social, economic and environmental administration at all stages of governance in order to enable optimisation of

combined effect and good organisation among activities such as public transport, energy consumption, biodiversity and human health (as evident from the Curitiba precedents case appraisal). Urban development for sustainable city also calls for continuing in various categories of infrastructures as well as the development of formal and administrative capacities that guarantees the active participation of all participants in the process of transitioning to sustainable cities. The precedent case of Curitiba in Brazil has increased in global recognition for having successfully developed that kind of integrated approach to sustainability over the past 40 years and the lessons learnt could serve as invaluable insights for Abuja's transitioning process

- The path towards building sustainable cities covers two types of investment, which are investment in infrastructure and capacity development (mainly aimed at terminating the shortcoming linked to the question of access to adequate public transport, water and public health, education, employment, housing and renewable energy services in urban and rural areas)
- Abuja needs strategic leadership to attract the necessary resources for green technologies as well as capacity development to ensure soundly constructed infrastructures such as housing, water and sanitation, electricity, health and education. There is therefore, a need for the exploration of ways of achieving this through the engagement of scholars, as was done in Curitiba
- Transitioning to sustainable cities involves integration among social, economic and environmental sectors. Sustainable city process would therefore need to be inclusive and give exceptional attention to the needs of the poorest and most vulnerable in Abuja city. The responsive strategies need to be dogged, action-oriented and two-way, but also adaptable to different levels of constraints encountered in the implementation process. Abuja needs to systemically change consumption and production patterns, encourage the preservation of natural endowments, reduce inequality and strengthen economic governance, as guided by United Nations on social, economic and environmental issues (Evans et.al, 2013)
- In addition to improving air quality, the plan should include other "pillars" encompassing land preservation, communal spaces, garbage reuse, water source and hygiene, climate action planning and transportation and mobility. The Abuja city's administrator's should put more effort into control of atmospheric pollution by substituting old taxis and minibuses with lower-

emissions means of transport by introducing bike-sharing programme, and anticipate on adapting a BRT system, similar to what was innovated for Curitiba. Learning from world sustainable cities, Abuja city administrators could also offer tax incentives on the value of properties for the promotion of green roofing in public buildings and private establishments.

Finally, the experiences from Curitiba's success in developing integrated approaches to sustainable city over the years could serve as clear motivation for Abuja city re-visioning for sustainable development. The absence of citizen's involvement and participation in the planning and scheme of decision-making in Abuja city has led to the development of urban forms that estrange the greater part of its citizens. This study shows that there is lack of a corresponding sustainable, inclusive and up-to-date urban planning system in managing cities in Nigeria, particularly Abuja. Several studies demonstrates that involving end-users in the plan and building of their environment offers a number of benefits, not least is the prospect of creating sustainable and functional communities that citizens could perceive as their own while effectively contributing to urban governance. Globally, this affirms that public participation is generally seen as essential for any plan to succeed especially because the community knows more about their need and the environment much compared to outsiders, regardless of their know-how; their feedback thus helps avoid huge future correctional expenditure that may arise.

Therefore, this Chapter sets the pace for an urban planning approach drawn from the lessons learned from Curitiba, as well as the results of theoretical support from secondary data sources, motivating for the adoption of participatory e-backcasting approach to the re-visioning of Abuja city, as applied in Chapter 5.

5 CHAPTER FIVE: ASSESSMENT OF THE EXTENT OF PARTICIPATION, INCLUSIVITY, IMPACT AND AWARENESS OF e-BACKCASTING PROCESS AMONG PARTICIPANTS

5.1 Introduction

This chapter presents the data and analysis related to both sub-questions 3 and 4. It first addresses sub-question 3 by appraising the extent of participation and levels of inclusivity achieved via the application of the prototype-oriented action-research that strategically used an on-line approach to guide sustainable city practices by the use of e-backcasting using Web 2.0 tools. The process was undertaken in order to assess the adaptability of participatory backcasting to e-backcasting as a strategic planning tool for the visioning process (see Appendix D for details). In addition, the chapter presents the results and findings from the prototyping process based on primary data collected from the diverse categories of participants. The sub-findings on the sub-question are also discussed, based on the extent of inclusivity as a critical towards component effecting the change required in order to move Abuja to a sustainable state. The process also showed the necessary modifications of issues across the applied prototype iterations as summarised in Sections 5.3, 5.4, 5.5 and 5.6 (see Figure 3.3 in Section 3.4.1 for details on the iterations approach). Each sub-section presents and summarises the key data from the empirical instrumentation and diversity of on-line tools/media employed, the selection and recruitment of participants, time-duration of each prototype stage in relation to inclusivity and participation.

The chapter then presents data and analysis related sub-question 4 which focuses on evaluating participants' understanding of the prototyping process (see Appendix B, C and D) in order to make a case for adapting e-backcasting as a strategic planning tool for on-going coherence during the implementation process. The process also presents data/analysis on the change in knowledge among participants as well as participants' preparedness for implementation of the prototyped sustainable city vision for Abuja. Findings are presented in terms of participants' perceptions before and after participation.

Given the role of the e-backcasting process in the overall engagement of social media and the view of uncertainties regarding sustainable city planning, the chapter presents insights towards the characteristics of what it means to allow people to engage in the decision-making process. The issues observed could thus offer insights to those who plan, design or fund new city visions on what methods to adopt in order to effectively integrate stakeholders' views through engaging both top-bottom and bottom-up decision making processes. The findings does not automatically point in the direction of particular practices that could be used in exact circumstances, but rather, recommend insight into the mechanisms and tools for involving participants' views. Sub-question 4 and objective 4 guides in the identification of these requirements while including participants' contributions and perspectives. The Chapter is structured into five main sections, as follows;

- Access and recruitment of participants
- Extent of participation and outcomes of the diversity of participation
- Instrumentation/iterations and participatory outcomes
- Participants' profile in line with the inclusiveness of the e-backcasting process
- Evaluating participants' awareness and experiences of the participating process
- Deriving sub-findings and initial conclusions

The different platforms engaged (see Section 3.4.1 in Chapter 3) enabled an understanding of the different backgrounds and nature of the research tools and protocols employed in carrying out the prototyping for e-backcasting adaptation.

5.2 Access and Recruitment of Participants

Access is a critical factor for any online action-research and securing trust in a virtual social setting can be difficult. The first contacts made were family, friends, students and church members with whom I had direct personal contacts. As a result, most of the contacts were drawn from South Africa, UK, USA, Malaysia, as well as Nigeria. Most participants were initially contacted through social/non-social networking tools, followed by snowballing in order to reach a broader spectrum of 302 consenting out of a total of 644 possible participants contacted (within Nigeria and in the diaspora-see Table 5.1).

Two months before commencing the e-backcasting exercise, bulk SMS messages were sent out to the pre-identified prospective participants. Such initial communication provided for self-introduction, guiding policy and procedure to be followed for the e-backcasting task (see Appendix F and G).

Participants from 14 universities and polytechnics, eight private organisations and bodies, three government parastatals and federal ministries were identified and initial contacts were made. The recruitment of participants from these organisations and institutions was greatly influenced by the case study location and researcher's personal contacts. Five university participants and three from the polytechnics were from institutions found in Abuja, Jos, Kaduna and Enugu state. Participants in the diaspora were first accessed through the researcher's link with some Nigerian international students. For those in the diaspora, their respective institutions are: 1 university in Malaysia, 2 from the UK, and four from South Africa (seeTable 3.5). For civic organisations and community bodies, 4 churches, 1 NGO and 2 CBOs were contacted while 3 ministries in Abuja, FCDA, AGIS and Federal Ministry of Housing and Urban Planning were also contacted. From the total of 25 such contacts, 15 agreed to participate, 3 explicitly declined and 7 did not respond. Access was gained through first sending emails formally through their heads and directors requesting the recruitment of their staff, students and members in the on-line exercise. This message was sent out prior to arriving in Nigeria for the prototyping process (see Section 3.4.3 and Table 3.5 in Chapter 3 for details). Without these initial contacts and access to prospective participants known to the researcher, the study would have experienced severe data limitations.

Recruitment request for the email platform was sent to 46 potential participants (comprising persons residing in Nigeria and in the diaspora), of which 26 responded and gave consent at the pilot stage; out of those who consented 6 participants were accessed via LinkedIn, and four consented (see Table 5.1). 14 potential participants out of the 46 opted out on the grounds that they reside outside Abuja and some others on the basis that they reside outside the country and as such would have nothing much to contribute thus deeming themselves as unsuitable for the needs of the study.

Following on snowballing from initial of 644 possible participants contacted, Facebook had a total of 113 contacts (by both the researcher and other

participants); out of which only two people consented through LinkedIn (see Tables 5.1). For WhatsApp, out of a total of 300 contacts, 130 consented through WhatsApp (see Tables 5.1). The blog records no recruitment by itself. LinkedIn marks a total of 24 (8%) recruitments out of 302 consents obtained in all four platforms.

Table 5.1: Modes of recruitments showing contacts/consent obtained across platforms social and non-social media tools

Platforms/iteration	Social/Non-Social Media Networking Tools												Total consents	Total contacts
	LinkedIn		Mobile networks		Email		Facebook		WhatsApp		Blog			
	Contacts	Consent	Contacts	Consent	Contacts	Consent	Contacts	Consent	Contacts	Consent	Contacts	Consent		
Email	06	04	15	07	25	15	00	00	00	00	00	00	26	46
Facebook	15	02	26	17	07	03	36	17	29	13	00	00	58	113
blog	03	00	18	04	01	01	07	00	11	04	00	00	09	40
WhatsApp	29	08	58	53	34	14	24	10	300	130	00	00	209	443
Total		14		81		32		31		145		00	302	
	53		117		67		67		340		00			644

Mobile telecommunications were strictly used to facilitate networking and recruitment of participants for the study. For the mobile-network channels of recruitment, it was difficult to keep track of how participants made initial calls because they only gave account of the number of persons contacted and responses received. About a total of 117 persons were initially contacted through the mobile networks, and 81 gave consent (see Table 5.1).

At the onset of the exercise, a few expressed initial fear of giving consent because of the prevalence of scams in the internet world, there was the need to assure participants of some level of safety continuously. Aside from the cost required in

maintaining contact with participants and frequent reminders to prospective participants, the additional limiting factors include the cost of ensuring online presence. As a result, follow up, and reminder messages were regularly forwarded. After several reminders, quite a number of people gave consent, while a few others never gave their approval. Even when the actual e-backcasting interactions commenced, some participants expressed shock on seeing themselves in the forum, and acknowledged that they had forgotten they had given consent a while back. In order to avoid repeats, with follow-up recruitment, participants were sent regular reminders before including them in any of the forums. The contact procedure followed primarily relied on Bryman's (2016) recommendation that the use of friends, contacts, colleagues, and academics can help gain access to a larger number of people and organisations in a manner that may not have been possible without them. That explains why for this study, initial contacts spread out to participants as far as the USA and UK, among others.

Through the researchers' contacts, a total of 216 (72%) participants were recruited while participants had a total of 86 (28%) additional participants recruited. Participants' capacity to recruit for this study was therefore far below what was initially expected (see Table 5.2). Even though, it was not possible to prioritise this shortfall as additional research issue, the research assume that inadequate interest and possibly the deemed complexity of the subject matter may have been the key inhibiting factors

Table 5.2: Distribution of recruitment between researcher and participants

Distribution of recruitment	WhatsApp	Facebook	Email	Blog	Total	%
Researcher	151	47	20	00	216	72
Participants	58	28	00	00	86	28
Total	209	75	20	00	302	100

In contrast to the researchers'' assumption, participants gave several reasons as to why the recruitment exercise was not taken seriously. Some participants attributed their inability to recruit participants to the on-going recession in Nigeria. Most of the self-reported factors hinged on the fact that they were not so sure what others would make out of the entire backcasting exercise, while some claimed they were not aware of the importance of recruiting others (in spite of the constant reminders) as demonstrated in the following excerpts:

- None yet but I will introduce my friends and family
- Didn't know I could add others

- None. Though I thought it was already late to do so
- They were not interested because most people contacted were of the opinion that the Nigeria government wouldn't use any of the findings, as such they see the process as a waste of time and effort. They fear that good ideas would be allowed to decay on the shelf because of lack of interest
- Most of my friends are already on the forum
- I sent my request out to people but yet to receive positive response
- None for now. Hoping to do so soon. Really have had no much time as I have been transiting from one city to another holding lots of meetings in the past one month
- Sorry it did not occur to me to add someone, please forgive me

5.3 Instrumentation and Participatory Outcomes of the e-Backcasting Tools

Data on the degree of involvement across all three platforms are shown in Table 5.3, 5.4, 5.5 and 5.6. The WhatsApp tool recorded the highest number of participants at a total of 161 at a time, compared to email (15), Facebook (58) and blog (9). This number of participants for the WhatsApp was attributed to the cheaper rate charged and less data required to participate and convenience of usage as it now performs very similar functions as Facebook. All these factors contributed towards the lower usage of the other platforms. The email, blog and Facebook recorded relatively fewer participants because of inhibiting factors such as the high cost of airtime, the process required in logging into the websites and link in order to participate, especially when coupled with the effect of the recession and increased dollar exchange rate.

Out of a total of 644 contacts made via social and non-social media tools, only about 302 persons gave consent and participated (see Table 5.1). Out of the 302, about 33 persons subsequently opted out or exited without prior notification to the researcher. 13 of those who exited expressed lack of ability to engage in public group discussions and asked for alternative means of engagement, if any. The other set of 10 left because of the difficulty in effectively airing their opinion, while another 13 left without explanation.

This led to several adjustments in approach, in writing and presentation of topics for better comprehension by all. There were also other challenges which negatively impacted on the extent of participation. For example, about 23 participants who reside outside Abuja, complained of not being able to contribute effectively to the various topical issues raised, as they were not familiar with the city vision, developmental process, and its historical context. Others reported challenges with

their handsets. At the onset of the exercise, it was established that 45 participants were not connected on-line. Subsequently to further inquiry as to why, 5 attributed their non-participation to their phones being stolen, ten had their phones changed while eight changed their lines to other networks aside from the one they had earlier been on, 10 had faulty phones or handsets, and 6 had out-of-network coverage issues. After follow-up calls and contacts were made, a total of 27 prospective participants were able to rectify their challenges, but 18 others had to be removed from the platform because they were not reachable (see Table 5.3, 5.4 and 5.6).

5.3.1 Email platform (first iteration)

The schedules below refer to activities or plans set out within the time frame allotted. Responses reflect the number of feedback/interactions recorded from participants for every activity. Daily records of active respondents showed that five persons were active at the first schedule with 6, 2 and 2 active participants for schedule II, III and IV respectively while 21, 15, 13, and 11 participants make up the number of passive respondents (see Section 3.4.3 in Chapter 3, Table 5.3 and Figure 5.1).

At the onset of the piloting stage, the first week had only four responses constituted of 2 respondents and 2 promises. Subsequently, in order to get participants to respond to emails, 3 reminders were sent to 26 consenting participants; the first was sent to 21 participants on the 9th of September out of which 5 responses were received; 4 responded, one participant promised to respond while 16 did not respond. The second reminder was sent to the 16 participants on the 15th of September. 2 responses were received; 1 apologised for inability to give the reply on time, the others promised to respond while 14 did not respond to the emails sent. The third reminder was sent to the 14 who were yet to respond on the 23rd of September 2016.

This third reminder yielded 3 responses, 1 apology, and 2 responses while the remaining 11 to date never replied to the emails. To an extent, sending participants' regular reminders encouraged continued participation as a total of 15 people responded out of the 26 consenting-participants thus making 58% rate of participation

Table 5.3: E-mail schedules and extent of participation

Recruitment (1st -30th Sept. 2016)				Schedule I		Schedule II		Schedule III		Schedule IV	
				1st-7th Oct. 2016		8th–14thOct. 2016		15th-21st Oct. 2016		22nd-28th Oct 2016	
Schedules	Contacts	Consent	Day	Active response	Passive response	Active response	Passive response	Active response	Passive response	Active response	Passive response
1st-7th	10	8	1	02	24	00	21	00	15	00	13
8th-14th	10	07	2	01	23	03 response	18	01	14	00	13
15th-21th	10	06	3	01 promise	22	01 response	17	01 apology	13	00	13
22nd-28th	10	05	4	01	21	01 apology	16	00	13	00	13
			5	01 promise	20	01 promise	15	00	13	00	13
Total	40	26	6	0	20	00	15	00	13	01	12
			7	0	20	00	15	00	13	01	11
Total				05/26	21/26	06/21	15/ 21	02/15	13/ 15	02/ 13	11/ 13
Average				05/sch.= 1	21/4= 5	6/4=2	15/ 4=4	02/4=1	13/ 4=3	02/ 4=1	11/ 4=3

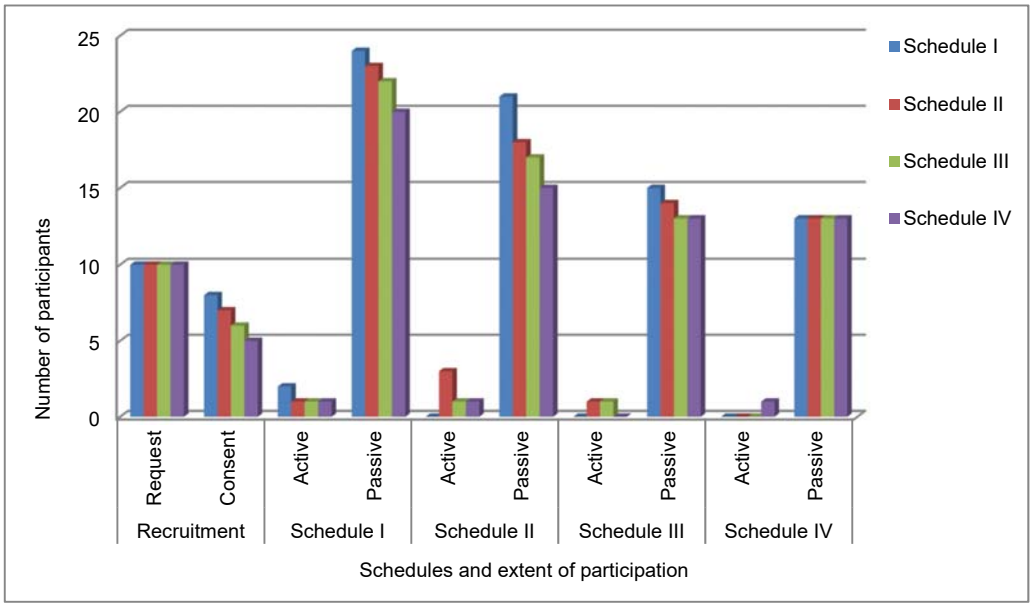


Figure 5.1: Schedules and extent of participation in the email platform

Unlike the WhatsApp and Facebook platforms, the email platform does not allow one to note first-hand who exits the group, is removed or violates the rules of participation. Participants choose to either respond to the mail or ignore it. Below are a few excerpts from participant responses in their own word after reminders (details found in Appendix D):

> Email Respondent 1: Hi Stella, I will do it tomorrow. I just came back after about 2 months being away.
> Email Respondent 2: Hi Stella, Ok please. I will try and do that very soon. Best wishes
> Email Respondent 3: Hi Stella, Sorry about the mix up. I missed applied response to your questions which would have been done on a different request. Disregard the one I sent, I will make time.
> Email Respondent 4: Okay. Madam, I have stated but not yet finished. I will try to finish soon.

The major challenge with the use of emails has to do with the fear of having the computer send emails as spam to participant's emails, thereby missing out on the target and thus resulting in the loss of prospective participants. About three potential participants were lost due to this challenge. Another challenge was that many of the targeted participants did not show interest and as such never responded to messages sent even after they had given their consent. For this platform, networking and the level of inclusiveness of participation was not the focus, instead the testing the applicability, workability, making changes and adjustment where needed was the primary focus. Notably, the email platform does not facilitate effective networking when compared to WhatsApp and Facebook tools.

5.3.2 Facebook (second iteration)

The five schedules of activities saw participation rising from 18 in the first week to 24 the second week and dropping to 23 by the fifth week. From the beginning to the fifth week, there were silent members, otherwise known as observers, rising from two to 33, showing the same trend with those of WhatsApp. Cumulatively, recruitment shows consistent rise in consenting participants facilitated by the networking approach, as there were noticeably gradual increases in recruitment from the first schedule to the last; 20, 41, 43, 44 and 49 (see Table 5.4 and Figure 5.2).

The gradual increase in participation between first, second and third schedules in daily recruitment has been the trend in all platforms and reasons are that participants at first are excited, but later give way to distractions and other personal

issues (see Appendix C). The gradual decrease is also attributed to lack of patience particularly as it had nothing to do with socialising.

Table 5.4: Facebook platform schedules, recruitments, and participation issue

Schedules /Dates	Active participation				Passive participation (Silent member)	Recruitment				Exist			Participants per schedule
	Response	Like	Views	Total active participants		Researcher	Participants	Recruitment	cumulative recruitment	Exit	Violation/ Removal	cumulative exit	
2nd-8th Nov 2016	11	02	05	18/18	00	18	02	20	20	00	02	02	20-02 =18
9th-16th Nov 2016	10	04	10	24/33	09	15	08	23	18+23=41	05	04	09	32
17th-24th Nov 2016	08	08	15	31/41	10	05	06	11	32+11=`43	00	02	02	41
25th Nov-2nd Dec 2016	06	06	15	27/39	13	03	00	03	44	04	01	05	39
3rd - 10th Dec 2016	08	14	11	33/36	03	02	08	10	49	13	00	13	36
Total/ Ave	43	34	56	133/5 =27	35/5=7	43	24	67	224/5 =45	22	09	31/5=6	166/5 =33

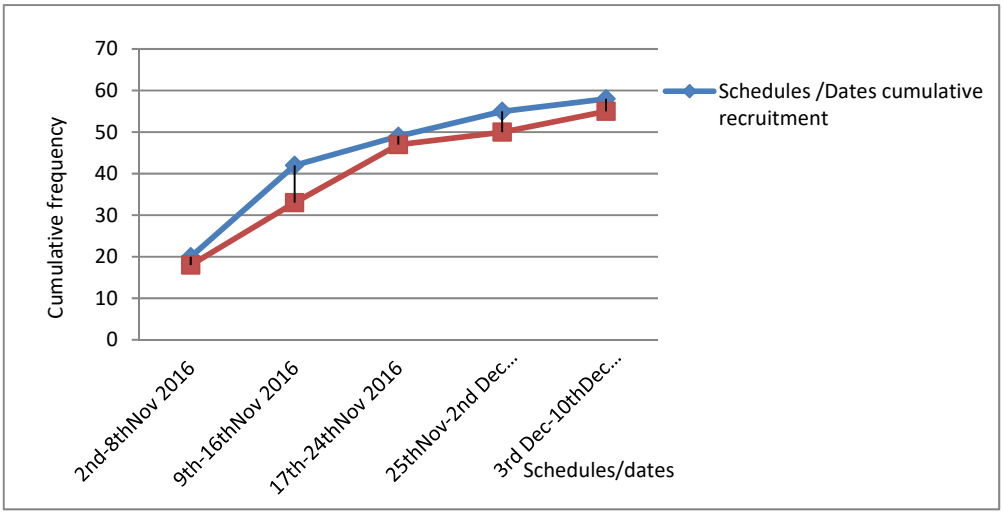


Figure 5.2: Cumulative recruitment and participation per schedule for Facebook

Participants see the entire process as an academic exercise and because of that notion, they were not able to dedicate quality time and input to the entire process. The total numbers of participants recorded at the end of the fifth week were 55 in number out of a total of 76 recruited (see Table 5.4). Cumulatively, an average of 45 persons were recruited for every schedule while on average, 5 persons exited the group. A total of 23 participants exited the group for the following reasons: 9 participants were removed based on the violation of the guiding policy while 14 others voluntarily opted out. This makes the platform second in terms of with the highest number of exiting participants after those in the WhatsApp platform. The total number of exits recorded on Facebook is seen as high because the number of exits when compared to the total number of participants is about 33% which is quite high.

Participants were removed by the administrator due to the violation of the guiding policy (see Appendix G). Those removed got into the habit of posting pictures, unrelated political-talks or some religious posts, most of which were out of the scope of the research and against the policy of the group. 2 persons were removed in the first week at the same instance, while the remaining seven were repeatedly warned three times before each removal. Facebook is one of the sites most visited by participants between the ages of 35-49 years, and as compared to the ages reflected in the readings appraised for this research (see Chapter 2, section 2.7 and particularly Ayodele (2013) and Financial Nigeria (2016) for the related argument).

From the first week, those tagged as viewers (passive participants) increased from 5 viewers to 15 within a period of four weeks and suddenly went down to six viewers. This was the same for those ‘likes' as some topics had more likes than others. For example, the topics for the third week had 8 ‘likes'. The initial increase in likes and views were attributed to the fact that participants saw some topics as very interesting and educational and others as boring and requiring critical thinking. In particular, topics that had to do with deliberations on the present state of Abuja in relation to lessons learnt from sustainable cities examples, such as Curitiba drew most participants’ attention in the deliberations. For many participants, this was the first time they were hearing about these cities and they were amazed at their success stories.

5.3.3 Word press blog platform (third iteration)

The blogging activity commenced on 1st January 2017 and concluded on the 30th April 2017 within a total of 4 months (16 weeks). It recorded the lowest number of participants out of approximately 30 participants contacted; it had just 9 consenting (see Table 5.5), even after the timing for the exercise was extended beyond the initially proposed timeframe. A key to participation under this platform hindrance was the overwhelmingly high pressure with regards to collating and managing the WhatsApp platform, as the process for both platforms overlapped time wise. To the benefit of the study, WhatsApp process picked up faster than expected and enjoyed high participation in terms of more posts and repeat posts. This resulted into a deficiency in attention given to the blog, which operated in a completely different way, as it has no tool to track who exited or was removed from the group. Instead, interested participants are only required to log on through the blog link and insert their comments. The comments were directly linked to the researcher's email where they could be accessed.

Table 5.5: Blog schedules, recruitment and extent of participation

Schedules/Dates	Contacts made	Consents/response received
1st-30th January 2017	10	03
4th-26th February 2017	12	04
1st -28th March	7	01
3rd to 30th April	6	01
Total participants'	30	09

5.3.4 WhatsApp (fourth iteration)

For the first week, a total of 117 consenting participants were recorded. The total number of participants for each week is obtained from the total participants from previous week plus those recruited for the new week minus the total number of exits recorded for the new week (see Table 5.6). The e-backcasting started in the first week with 117 people, the second week had a total of 173 and by the eighth schedule or week 161 consenting participants had been retained. The knowledge of the cumulative daily recruitment gives an idea as to the number of recruitments due both to the researcher's and participants' efforts to attract people and encouraging them to participate daily (see Table 5.6). For the entire exercise, 151 people were recruited by the researcher while participants recruited 58 through their own networks. On the average, 56 persons were actively engaged in the schedules.

The first week records 91 active participants out of a total of 117, but by the seventh the number of active participants dropped to 15 participants.

Table 5.6: WhatsApp platform recruitments, schedules and participation issues

Schedules/ Dates	Active Response (cumulative)	Passive Response	Recruitment				Exit			Violator	Total number of participants per schedules
			Researcher	Participant	Total recruitment	Cumulative recruitment	Exit	Removal	total exit		
22nd February -3rd March	91	26	99	24	123	123	06	00	06	01	117
4th March-13th March	68	99	39	16	55	178	04	01	05	01	173
14th March -23rd March	94	80	10	06	16	194	05	04	09	02	189-9=180
24th March-2nd April	68	102	01	00	01	195	04	01	05	01	176
3rd April–24th April	33	118	01	10	11	206	06	02	08	02	179
27th April–2nd May	55	99	01	02	03	209	00	00	00	00	182
4th May-19th May	15	132	00	00	00	209	00	06	06	00	176
22nd May-13th June	24	99	00	00	00	209	00	15	15	00	161
Total/Ave	448	755	151	58	209	1523	25	29	54	07	1350
Average	448/8sch=56	94	19	7	26	217	3	4	7	1	169

*Passive Response = Total number of participants for each schedule minus active respondents e.g. 173-68=105
*Cumulative recruitment = Previous recruitment plus the new schedule recruitment e.g.123+55=178
*Total number of participants for each schedules (sch.) = Total participants from previous Schedule Plus new schedule recruitment minus new schedule exits e.g.117+55-05=173
*Active Response = Cumulative participation per schedule

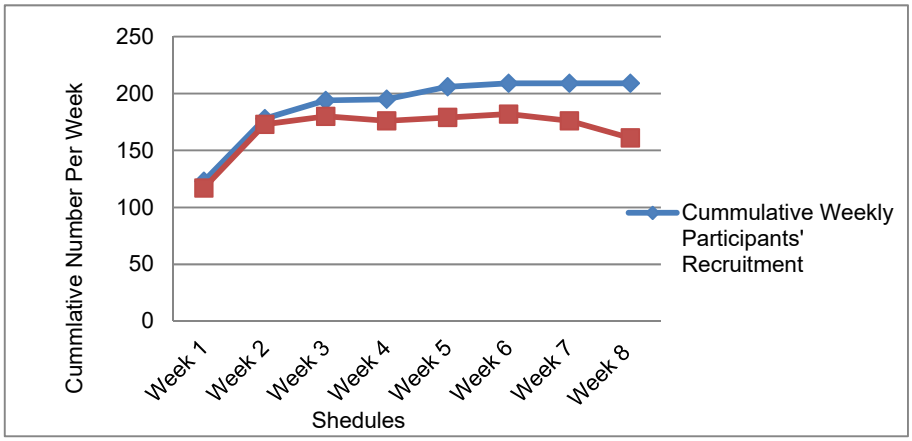


Figure 5.3: Cumulative recruitments and participation per stage for WhatsApp

In assessing the weekly recruitment, the researcher had the highest recruitment for week 1 and 2, with 99 and 39 people recruited while participants had 24 and 16 recruitment respectively for the two weeks. As at the seventh and eighth-week, recruitment stopped as participants felt the exercise was running to an end, and therefore did not need any more recruitment. In order to avoid participants becoming bored and opting out faster than they were recruited, the researcher decided to put a stop to recruitment to allow space for participants to attend to their activities.

5.3.5 Key limitations to effective participation

Table 5.7 presents the key limitations to effective participation (both in terms of those consenting as well as the on-going contributions across the various platforms. Two reasons explain why total number of recruitments or interactions amongst participants dwindled and fluctuated. These are:

- Since participation is on a voluntary basis, as soon as phase two of the e-backcasting started, particularly at the re-visioning and backcasting stage (see Table 5.4), the interest of participants dropped due to the critical thinking and technicalities involved while many others preferred to remain passive. That explains why the number of passive participants increased from 26 in the first week to 132 by the seventh week
- Coincidently, participants became very busy pursuing their personal activities and quite a number preferred to remain passive instead of exiting the group. The fluctuation in the total number of participants also indicates the extent of exits, removals due to continued violation of guiding principles even after repeated warnings by the administrators while some requested to be removed. This challenge cuts across the other three platforms, especially Facebook. For instance, the excerpts below give an example of cases where people requested to be removed (note that most participants responses have not been edited)

> **Respondent WhatsApp**: So sorry jare! You know me and group chats! I will respond but I would have to plead with you to let me off o! It seems I am not able to commit to it. I hardly read the chats and can't follow the line of questioning! So much to do in the office!. The truth is I do not want to give opinions that are not carefully thought out and because of a lack of time; I cannot follow the train of thought on it!

As shown in Table 5.7, 17 other factors were cited as key contributors to hindering active participation and also inhibiting consistency in the total number of as well as

quality participants' by schedule. From the pilot study, participants' reasons for not effectively responding within the timeframe allotted for each session include being very busy, wrong email, redundant and inactive emails (which resulted to eight sent email messages being returned as undeliverable).

Table 5.7: Constraints limiting participation

Limitations	Facebook	WhatsApp	E-mail	Blog	Total
Poor Internet	2	4	-	1	7
Sick	2	4	-	-	6
Phone problem	4	12	-	1	15
Busy at work	3	11	2	1	17
Lacked confidence/all interaction were done in English	-	6	-	-	6
Busy at school	5	9	4	-	18
Inadequate knowledge on Abuja vision and plans, never visited, nor resident in Nigeria	4	6	2	1	13
Study visa expiration and delayed renewal	-	2	-	-	2
Not ready to comment	2	8	-	-	10
Bounced Emails	0	0	0	8	8
Busy	2	7	3	-	12
Unemployed and financially incapacitated	1	4	-	-	5
Not stable emotionally and physically	-	3	-	-	3
Travelled	4	5	2	-	11
Busy and Unstable	4	5	1	-	10
Don't reside in the country	10	8	2	1	21
Rigour of participation	11	-	-	4	15
Total	54	94	16	17	181

Table 5.7 shows that 20 respondents complained of never having been to Abuja before (and so could not effectively contribute) while 21 prospective participants complained of residing outside Nigeria and unfamiliar with issues concerning Abuja (and thus lacked adequate knowledge about the city's vision and plans). Similar constraints cut across all the four platforms.

Fifteen participants who had initially given consent in the Facebook and blog forum complained of not being able to dedicate time to follow up with the sessions due to the rigour involved. Some participants were not able to participate because they felt the difficulty involved with using Facebook was too much, while others said that they could not afford sufficient data-bundles on their phones due to the recession. A few others reported that their inability to participate was due to the limited time given to respond and further suggested that more time be provided to enable quality-participation.

The researcher could not provide more time since the study is time-bound but also because those that were very active were neither patient nor willing to allow for more time, since they had other personal issues to attend to. 5 people blamed their

inability to participate effectively on unemployment and lack of good sources of income. About 10 participants had issues that hindered their participation, which they did not reveal nor reported. 13 participants complained about the limitation caused by the timing given to respond to each exercise. A few excerpts in participants' words stating reasons why they could not give inputs as much as they would have loved to are as follows:

- **Sick**
- Participant 1: Flu kept me in this week
- Respondent 2: Sorry I haven't responded yet. I am just recovering from a bout with fever. I will go through and respond accordingly
- **Phone problem**
- Respondent 3: I just replaced my handset last week as my old phone crashed; you may have to re-send the link to the blog again
- Respondent 16: I will comment soon, I am having issues with my phone. Can't type, I formatted my phone twice just this week, so it's taking me more time to restore things back on my phone
- Respondent 11: Okay will comment soon. I belong to too many groups and their various activities are consuming my battery power a lot. But all the same, I have been following up on the chat
- Respondent 20: I wanted to send a message some days back, and I was told I could not send any word that I have been removed from the group, but I guess its network
- **Busy at work**
- Respondent 3: I'm at work at the moment. Work's the reason I've not been able to make any contribution yet, please. Don't even have time enough to read much of other members' opinions
- **Lacked confidence/all participation was done in English**
- Respondent 4: Send me the question through this number. I find it difficult to join multi-chatting sometimes
- Respondent 8: My sister. I'm somewhat being schooled in the forums than contributing. I don't know much about Abuja and its planning cynics; I, however, will participate on the population dimensions when I'm less busy
- **Busy at school**
- Respondent 5: I'm also working on my master's degree project. I'm working on chapter five. That is why I have not been able to contribute
- Respondent 9: Am alright, just that we are writing exams right now, I mean Enugu state university of technology
- Respondent 17: Sorry for the long silence, marking student exam scripts has taken up most of my time. I will say something on the topics soon
- **Busy**
- Respondent 6: I can't participate in the questionnaires, for now, time does not permit me. I'm busy with quite some projects, and I cannot apply my mind to your task for now. I would have loved to help. Hope you understand
- Respondent 12: well I could not read the debates or other contributions. On my way back to Nigeria from the Niger Republic from international boundary synchronization meeting
- Respondent 7: I am not active at the moment on both WhatsApp and Facebook
- Respondent 14: I responded once but am currently occupied with a campus design; hope to make contributions this weekend
- **Never visited, nor resident in Nigeria**
- Respondent 10: I cannot participate or make honest contributions because am not a resident in Abuja which is the location of being studied, this platform is educative as much, and it demands constructive input. My worry is if I have to make contributions then my ideas will be based on assumptions.
- **Poor Internet**

- Respondent 13: Sorry I've been unstable. I'm doing some work in a remote village in Bauchi and there are no stable networks here. I would have loved to be more active, but there are so many issues with internet network in this village
- **Unemployed and financially incapacitated**
- Respondent 15: Morning it has not been easy with me financially, no job and so lack motivation, but I promise to improve because the forum has impacted a lot in me
- **Study visa expiration and delayed renewal**
- Respondent 19: Busy trying to see if I can submit my thesis before coming back home soon, my permit expired on December 31. I applied for critical skill since October but no response from Directorate of Home Affairs. With this Xenophobia attack, we were not allowed to work without a valid permit

Such feedback from participants enabled the researcher to improve and make changes on the second, third and fourth iterations and thus improved on the response rate and participation. Some of the feedback was related to the time taken to participate, and the technicality of questions asked which thus made participation a time-consuming process. The respondents suggested that long, unclear and unfamiliar items should be adjusted while some of the issues for consideration should be addressed in order of importance, in order to improve on the practical application of the approach next time.

5.4 Participants' Profiles in relation to Inclusiveness

As stated earlier, snowball networking was significant in developing a demographic profile for this study through data received from participants themselves. All information on participants' profile was consolidated to create the landscape of the entire research process with regard to the extent of inclusiveness. The elements that give insights into participants' profile and the extent of inclusion are as follows:

Participants' age bracket

Table 5.8 and Figure 5.4 show the distribution of participants along age brackets. Participants within age bracket 25-39 had the highest response for WhatsApp at 36 (48%) and Facebook had 12 (39%). This corroborates Ayodele, (2013) and Ogunlesi's, (2015) argument of the most active age bracket on social media. Age bracket 40-54 had most reactions for emails at 10 (67%) and blog at 3 (60%). The age bracket with the least responses and participation were those of 65 and above, which could be expected due to limited engagement with social media. Surprisingly, contrary to researchers' expectations age bracket 18-24 did not participate at all in any of the platforms. This can probably be attributed to their lack of interest in participating in such academic exercises since it was possibly regarded and seen by such an age-group as uninteresting and requiring too much

critical thinking to warrant or attract participation. It maybe that the subject was outside their comprehension.The overall, average age is 38 years.

Table 5.8: Distribution of participants by age brackets

Age bracket	WhatsApp		Facebook		Email		Blog		Total
	Participants	%	Participants	%	Participants	%	Participants	%	
18-24	09	12	08	26	00	00	00	00	16
25-39	36	48	12	39	05	33	02	40	55
40-54	21	28	09	29	10	67	03	60	43
55-64	07	9	02	7	00	00	00	00	09
65+	02	3	00	00	00	00	00	00	02
Total	75	100	31	100	15	100	05	100	125

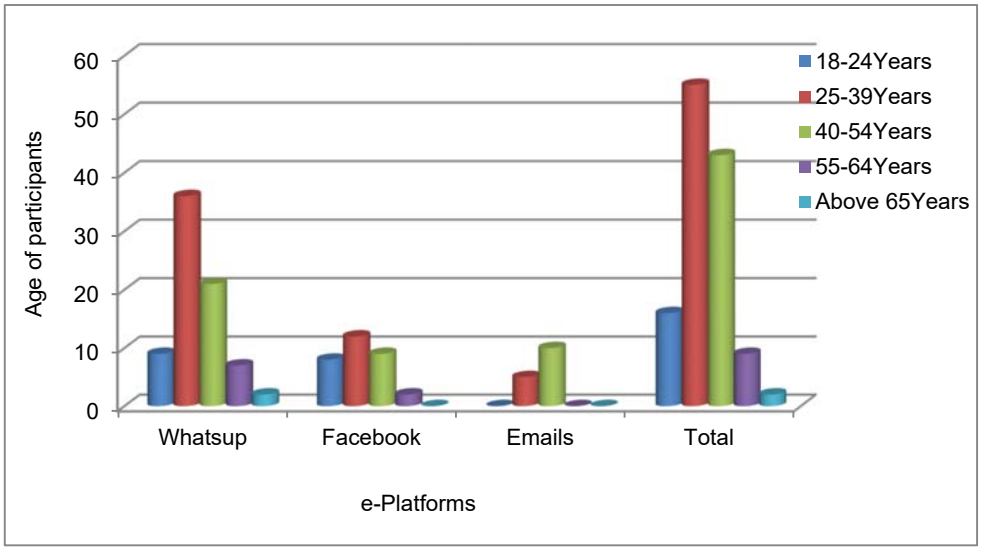


Figure 5.4: Distribution of participants' age by platforms and tools

Gender distribution of participants

The WhatsApp forum recorded (53) 76%, the highest number of male participants out of the 302 consenting participants while Facebook recorded the highest number of female participants at (23) 70%. The majority of male participants fall between 25-39 ages brackets while those of the females falls amidst 18-24 and 25-38 (see Table 5.8 and Table 5.9). 50% of the respondents were accessed and recruited through the researcher's initial direct contact, comprising mostly students from Nigerian universities, polytechnics and former classmates, both at the secondary school, university and PhD colleagues, particularly those resident in Nigeria. 10% were from churches while 20% were recruited through snowballing by networking amongst participants

Table 5.9: Participants' gender (based on self-identified/reported data)

Gender	WhatsApp		Facebook		Email		Blog	
	Participants	%	Participants	%	Participants	%	Participants	%
Male	53	76	10	30	12	80	04	80
Female	17	24	23	70	03	20	01	20
Total	70	100	33	100	15	100	05	100

Marital status of participants

Table 5.10 and Figure 5.5 show the marriage status of participants. The married participants were the highest number of participants for all platforms, 33 (40%) for WhatsApp, 13 (36%) for Facebook. 09 (64%) for email and 04 (80%) for the blog. The next highest category of participants are the singles with 32 (43%) for WhatsApp, 17 (47%) for Facebook, 03 (21%) for those of the email and 1 (20%) for the blog and for those separated from partners for WhatsApp make up 1 (1%) of all participants.

Table 5.10: Participants by marriage categories status

Marriage status	WhatsApp		Facebook		Email		Blog	
	Participants	%	Participants	%	Participants	%	Participants	%
Married	33	44.	13	36	09	64	04	80
Single	32	42	17	47	03	21	01	20
Divorced	02	3	02	6	00	00	00	00
Common law	05	7	03	8	02	15	00	00
Separated	01	1	00	00	00	00	00	00
Widowed	02	3	01	3	00	00	00	00
Total	75	100	36	100	14	100	05	100

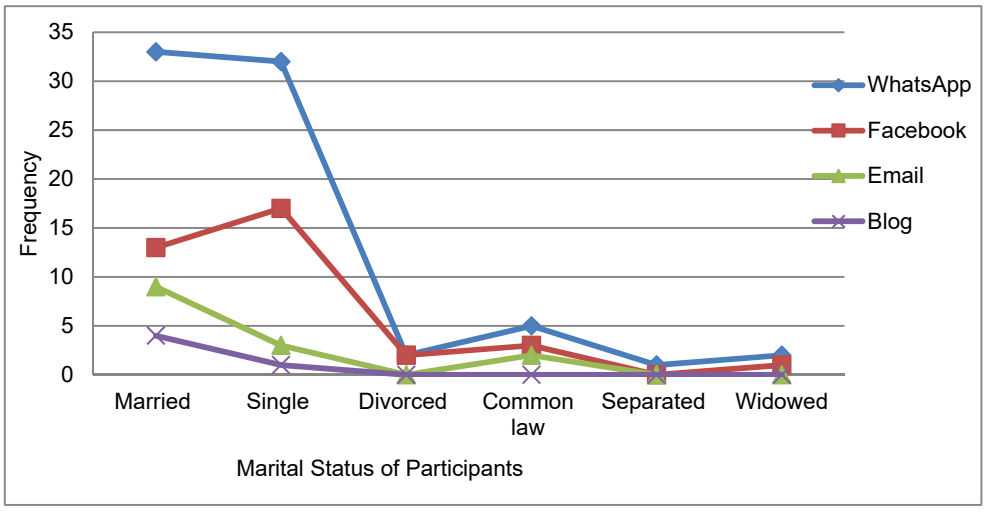


Figure 5.5: Marital status of participants as per census categories (NPC)

Participants' religious affiliation

Table 5.11 shows that 60 participants in WhatsApp, 16 in the Facebook, 3 in blog and 13 in email self-identified as Christians (thus making a total of 92 Christians out of a total of 112 participants) while six persons in WhatsApp, nine in Facebook, two in emails and one in the blog (a total of 18) self-identified as Muslim. Only 2 of the participants self-identified as traditionalist. Over 237 participants did not take part in this task as most of them preferred not to be self-identified with any religion.

Table 5.11: Participants by self-identified religious/system belief

Religion	WhatsApp		Facebook		Email		Blog		Total
	Participants	%	Participants	%	Participants	%	Participants	%	
Christian	60	90	16	59	13	87	03	75	92
Muslim	06	9	09	33	02	13	01	25	18
Traditional	00	00	02	7	00	00	00	00	02
Total	66	100	27	100	15	100	04	100	112

Participant's tribe and state of origin

Table 5.12 shows the distribution of participants along the three major ethnic groups of Nigeria by population (Ibo, Hausa, and Yoruba) (NPC, 2006).Those who self-identified as Ibos make up a total of 20 (27%) of the total number of participants for WhatsApp, Hausa 10 (33%) of participants for Facebook while 6 (40%) for email. one (20) % of the total number of participants self-identified as Ibo's for the blog platform. Other minor tribes make up 54 (73%), 20 (67%), 09 (60%), 03 (60%) respectively, thus comprising of 86 participants (69%) out of 124 participants. The minority ethnic groups comprise of Igala, Bassa, Ankwe, Rukuba, Mwahgavul, Jenjo, Kajuru, Eggon, Jaba, Ngas, Berom, Idoma, Ukwuani, Urhobo and Osayin in Ogori-Magongo. When combined, they outnumber those of the major tribes. The high number of participants from these areas are said to be influenced by the case study location since most participants reside or are indigenes of the middle-belt zone of Nigeria where Abuja is also regionally located the researchers'

coincidentally hails from the middle-belt. The researcher's initial contacts (at place of work and residence) could have also played a major part.

Table 5.12: Participants' tribe

Tribe	WhatsApp		Facebook		Email		Blog		Total
	Participants	%	Participants	%	Participants	%	Participants	%	
Igbo	11	15	04	13	01	7	01	20	17
Yoruba	07	10	03	10	04	3	00	00	14
Hausa	02	3	03	10	01	7	01	20	07
Other tribes	54	73	20	67	09	60	03	60	86
Total	74	100	30	100	15	100	05	100	124

Participants with disabilities

Table 5.13 show that 61, 18 and 10 participants for the WhatsApp, Facebook, and email respectively had no disability (a total of 89 not disabled) while a total of six persons on the WhatsApp, email and Facebook forums had sight disability while 1 participants on the Facebook platform reported that they suffer mobility constraint due to a car accident.

Table 5.13: Participants with sensory, physical or mental disability

Response	WhatsApp	Facebook	Email	Blog	Total
Yes	03	02	01	00	06
No	61	18	10	00	89
Total	64	20	11	00	95
If yes into which category does your disability fall?	WhatsApp	Facebook	Email	Blog	Total
(a) mobility	00	01	00	00	01
(b) Speech	00	00	00	00	00
(c) Sight	03	01	01	00	05
(d) Developmental	00	00	00	00	00
(e)Hearing	00	00	00	00	00
(f)Not applicable	61	18	10	00	89
(g)Others specify	00	00	00	00	00
Total	64	20	11	00	95

Participants' level of education

Table 5.14 shows that participants with the highest level of education are those with bachelor's degree (58), while 24 had a masters or graduate degree, 5 with high school certificate or equivalent, 8 doctoral degrees, 6 professional degrees (e.g. MD, JD), thus making 103 out of 117.

Table 5.14: Participants by level of education

Participants level of education	WhatsApp	Facebook	Email	Blog	Total
	Participants	Participants	Participants	Participants	
Less than high school	00	02	00	00	02
Grammar school	02	01	00	00	03
High school certificate/ equivalent	05	00	00	00	05
Some college but no degree	02	02	00	00	04
Associate degree	11	02	00	01	14
Bachelor degree	27	15	13	03	58
Masters/Graduate degree	20	04	00	00	24
Doctoral degree	03	03	02	00	08
Professional degree	03	03	00	00	06
Other, specify	01	02	00	00	03
Total	74	34	15	04	117

Since participation was on a voluntary basis, it affected participants' commitment to each activities and that explains why in the middle of an activity, participants could just decide to exit or not continue giving response they were not compelled to. The ongoing in-and-out movement of participants affects the total number under each activity or schedules. This also explains the change in total participants across all platforms as well as in relation to levels of education. 14 of the participants had an associate degrees while 2 participants had less than high school certificate, 3 of the participants' had no formal education while 4 had some form of college education but no degree.

Participants' skills/occupation

The professional categories applied for the study are the major categories under the International Standard Classification of Occupations-ISCO (also used by EuroStat with the exception of sub-categories of the ISCO). Table 5.15 shows that the skills/occupation which recorded the lowest number of participants are: the clerical support worker, service and sales worker, skilled agricultural, forestry and fishery worker, craft and related trade worker and plant and machine operator and

assemblers with each having just 2 representations. 55 participants had professional skills while 19 self-identified under other (not specified) with teaching skills (2), exporters (2), National Youth Service Corps (NYSC) (8), footballer (1), tertiary institution students (2), medical doctors (2), nurse (1), and firefighter (1).

Table 5.15: Participants' current skills/occupational category

Participants current skill category	WhatsApp Participants	Email Participants	Blog Participants	Facebook Participants	Total
Manager	10	01	00	00	11
Professional	33	10	09	03	55
Technical and associate professional	15	01	01	01	18
Clerical support worker	00	02	00	00	02
Service and Sales worker	02	01	00	00	03
Skilled agricultural, forestry and fishery worker	01	01	00	00	02
Craft and related trade worker	01	01	00	00	02
Plant and machine operator/ assemblers	01	00	01	00	02
Elementary occupation	01	06	00	00	07
Armed forces occupation	01	03	00	00	04
Others.	12	06	01	00	19
Total	77	34	12	04	123

Participants' monthly income (in naira)

The socio-economic status of respondents is mainly linked to the income group to which they fall under and can be said to be tied to the total income earned monthly or annually (see Table 5.16). This can then be applied to infer their level of affording and accessing both basic needs and good quality of life. 76 participants earn above ₦120, 000 a month (45%), while the category of less than ₦18, 000 a month (4%) had the least number of participants.

Table 5.16: Participants total monthly income in naira

Participants total monthly income in naira	WhatsApp Participants	Facebook Participants	Email Participants	Blog Participants	Total	%
Less than 18,000	03	01	00	01	05	4
18,000-30,000	04	01	00	00	05	4
31,000-50,000	04	01	00	01	06	5
51,000-75,000	04	01	02	00	07	6
76,000-90,000	03	02	01	00	06	5
91,000-120,000	03	12	04	01	20	17
Above 120,000	36	08	08	01	53	45
Others specify.	06	10	00	00	16	14
Total	63	26	15	04	118	100

Participants' employment status

The following categories best describe the employment status of most of the participants across the four platforms. Out of a total of 103 participants who responded to this question, 31 (30%) are gainfully employed and working 40 or more hours per week (full time) while eight respondents (8%) are employed but working 1-39 hours per week on a part-time basis (see Table 5.17).

Table 5.17: Participants' employment status

Participants employment status	WhatsApp Participants	Facebook Participants	Email Participants	Blog Participants	Total	%
Employed full time and working 40 or more hours per week	15	07	07	02	31	30
Employed, working 1-39 hour/week (part-time)	04	02	01	01	08	8
Not employed, looking for work	11	10	00	00	21	2
unemployed, not looking for work	01	04	00	00	05	5
Full time student	06	05	02	01	14	14
Self-employed	12	04	00	00	16	16
Retired	01	00	00	00	01	1
Homemakers	03	04	00	00	07	7
Other, specify	00	00	00	00	00	00
Total	53	36	10	03	103	100

About 38% of the participants were gainfully employed while the jobless, students and self-employed were 20%, 14% and 16% respectively. The categories with the lowest number of participants were the homemakers and retirees. Their low number is probably linked to their interest and financial state at the time of the exercise.

5.5 Inclusiveness of the Participatory Process

Participation practices require willpowers that focus on increasing contribution primarily towards the content of programmes and policies. Specifically, meaningful participation is oriented towards enhancing input to decision-making in government and governance processes. Inclusionary practices entail continuously creating a community involved in co-producing processes, policies, and programmes for defining and addressing public issues. For this study as earlier discussed, we maintain that inclusion and participation stand as two complementary (although slightly varied) levels of public engagement. By incorporating both in public administrations, they improve the value of the decisions reached while also

improving the communities long-term capacities (see Section 1.1 in Chapter 1 and Section 2.6 in Chapter 2 for details).

Table 5.18: Summary table showing extent of inclusiveness across profiles with which participants' involved was achieved

	Gender	Age	Marriage status	Tribe	Religion	Disability	Level of education	Skill category	Employment status	Income (in naira)
	79 males, 44 females and (179 did not identify their genders)	Apparently with an average age of 38yrs, 16 come under 18-24, 55 come under 25-39, 43 come under 40-54, 9 come under 55-64 and 2 are 65 years and above	59 (64.29%) are married, one person is separated from partner, and 53 of the participants were single, and 4 indicated they were divorced, 3 were widowed, and 10 are married under the common law	Igbo were17 Yoruba had 14 persons, Hausa also had 7people while 86 make up the largest group comprised those of other minor tribes from the middle belt, South, and North central	92 participants were Christians, 18 Muslims and 2 traditional worshipers	6 people indicted one form of disability or the other while 89 persons had no disability. Amongst those with one form of disability; 1 person suffers from mobility issues and 5 suffer sight problems, there were no indications of participants with speech, developmental or hearing challenges	2 participants were with less than high school certificate, 3 with grammar school, 5 with high school degree or equivalent 4 come under those with college, but no degree, 14 with an associate degree. 58 had bachelors' degree, making the highest number of participants while 24 had masters/graduate degree. 8 are with a doctoral degree, 6 were with a professional degree and 3 make up other levels.	11 were managers, 55 professional, 18 technical, and associate professional. 2 others are clerical support workers, 3 service and sales workers while 2 were skilled agricultural, forestry and fishery workers. Other 2 craft and related trade workers, 2 plant, and machine operator and assemblers, 7 elementary occupations, 4 armed forces, 19 others (comprising student, firefighter, paramilitary officer, teaching skills, exporters, footballer, medical doctor/nurse)	31 people employed and working 40 or more hours per week on a full-time basis; 8 employed but working 1 hour to 39 hours per week on a part-time basis. 21 employed but looking for work while others constitutes 5 not employed and not looking for work and another set of 14 as full-time student, 16 as self-employed, 1 as retired and 7 homemakers	5 earn less than 18,000, 6 between 18,000 and 30,000, 7 earn between 31,000 and 50,000. Other 6 earn between 51,000 and 75,000 20 earn between 76,000 and 90,000, 53 earn between 91,000 to 120,000 making the largest while 16 earn above 120,000
Total active participants'	123	125	129	124	112	95	127	125	103	113
Total passive participants	179	177	173	178	190	207	175	177	199	189

Participants' involvement started with the recruitment process at an early stage of the e-backcasting prototyping, followed by participation in four iterations via four online platforms (see section 3.4). Inclusiveness (or inclusivity) is based on the two groups that can be distinguished in the exercise from a process perspective: diversity of participants involved and the elements that constitute or define inclusivity as elaborated in Sections 1.1 in Chapter 1 and 2.6 in Chapter 2. The attributes of participants which give an idea of the level of inclusivity are elaborated in Table 5.18. They include:

Feeling of inclusion: Inclusive practices allow participants to familiarise themselves with problem-solving as well as the implementation of detailed tasks and goals thus resulting in a better feeling of fulfilment. Practices such as this when used in public decision-making processes sometimes can as well create communities in which people feel excluded. For this study, the e-backcasting approach was able to carry the diver's range of participants along in the decision-making process, such that the approach was able to address the feeling of exclusion amongst participants. This is demonstrated by self-reports of the participants and from the findings on the participatory process (see sections 5.3 and 5.6).

Participants' report that they did not feel disengaged from the decision-making since their ideas seemed valued and during the process, participants' created relationships with one another. One of the highest inspiring significances of inclusion is that, among the four iterations, the procedures created more approval and accomplishment amongst participants'. This seemed also to reflect that they did not experience exhaustion or hostile or unfriendly treatment by others on-line.

- Mixed top-bottom and bottom approach: It is evident in this study that city planners, experts, unskilled and skilled, members of the public, and politicians, who understand the public challenge and are keen to innovate solutions in a collective, evolving, realistic, situation in an historic way, with multi-disciplinary perspectives, came together to initiate change in a prototyped scenario. The e-backcasting process focused mainly on mixing citizens (top-bottom and bottom-up) as opposed to just focusing on one social-group and their views on city visioning, plans, and approaches to sustainable transitioning. Their knowledge emerges from day-to-day experiences and in their various

embodied experiences as they engage with the problem in different ways because what participants know is inseparable from how they get or got to know it (see section 5.4).

- An on-line community was created: Without the collective structure of inclusion, it has been argued that it is difficult for a well thought-out process to thrive in the pursuit of achieving many ways of knowing. The aim of the study motivated and guided the process of the selecting participants based on the purpose and the knowledge that was expected to be brought into the e-backcasting by the prototyping process through meaningful involvement of participants. As such, participants were not identified solely on the basis of their vested interest in the Abuja city process or vision. Instead the study was able to achieve a form of on-line community which was required to satisfy the objectives of the study.
- Up-to-date deliberative processes: This process is fundamental to social equity. Bringing people together from different perspectives in ways that allow them to appreciate one another's perspectives enhances inclusiveness in policy implementation (see Table 5.18). It created a community of participation where people can share information from different perspectives and work collaboratively on their mutual problems. The e-backcasting approach initially hypothesised the processes of knowing that allow participants to understand how to engage with others based on embracing new and different ways of acquiring knowledge. This was mainly based on moving participants' initial interests from problem-solving to visioning approaches towards managing complex problems such as sustainable city transitioning (see Appendix D).
- Diversity of views and perspectives: Diversity is another criterion for inclusion and participation approaches, has and thus enabled a better appreciation of diverse contributions from the 302 participants prototyped in the e-backcasting process (see Table 5.18). If, in practice, more effort is invested towards increasing participatory representativeness (especially when guided by improving accessibility of the process) more diverse input can be achieved. This might entail the provision of diverse language translation coupled with convenient meeting times in order to mitigate the factors which constrain or inhibit participation. As a result, participants were not only able to delineate the problem and engage through the prototyping procedure iteratively and interactively but also managed to incorporate learning from the diversity of inputs, while also making network and connections among themselves.

5.6 Evaluating Impact on Participant's Awareness and Opinions

For each of the platforms, participants' awareness and opinions were the focus of each stage of the process (as earlier reviewed in Chapters 1, 2 and 4). Sustaining the pursuit of city visions and development can be challenging in the sense that cities are faced with on-going complexity and uncertainty, resulting in the urgent need for critical thinking in decision-making processes. The traditional master planning approach alone cannot solve Abuja city problems because of the city's many uncertainties surrounding its development pathway. Likewise, the top-bottom modernist planning and governance approach is not able to satisfactorily legitimise the major steps that may be required to deal with sudden emergent city-changes. As long as the city future visioning and plans are full of uncertainties, choice risks are high; the goal of discovering the way out is unachievable in principle. It requires therefore an adaptive and strategic planning approach or tool that also entails the inclusion of participant's knowledge and opinions as motivated from both the practical and policy point of view. This is facilitated by the information that the knowledge and ideas that the 302 diverse participants brought into the e-backcasting were helpful new outlook on the problem as well as applicable information towards resolving the problem interactively.

Extent of impact and learning by participants

Following each stage of the e-backcasting prototyping, participants were asked to respond to evaluation questions (see Appendix B). The assessment of the adaptability potential of the e-backcasting approach covered aspects of process and outcomes, and it consisted of two main parts. The first set of assessment questions related to the level of impact and learning on participants as a whole, while the second assessment questions addressed the participants' opinions towards the adaptability of the e-backcasting as a technique. The first set of assessment questions comprised 11 questions and the second set comprised 6 main questions with sub-questions.

The Likert scale was applied to facilitate the assessment of participation the experience and how likely participants would recommend the process to others. On most questions, a score of 1 to 5 was given, with one being the worst score and five the best. The questions were designed to elicit participants' assessment of the e-backcasting itself, of e-backcasting as a procedure, and of the potential

applicability of the findings to management and decision-making. The evaluation also included five open-ended questions asking what participants liked about the approach in order to serve as an indication of how the method fared.

The follow-up questions were on what aspect participants would want to be improved or what could be done differently next time. Another issue was on the strengths and weaknesses of the moderator (in this case the researcher) as an indication of how appropriate, organised and clear the various tasks were in relation to engaging participants and finally, what ideas they had participants would suggest for next steps or potential users for the results of the approach (see Appendix B). The procedure required that participants either give a response to all the assessment questions asked or in some cases, answer directly. For email and blog, only the active participants were contacted. WhatsApp and Facebook had both active and passive participants reached. This was mainly because WhatsApp and Facebook platforms were more open and more interactive, such that everyone could follow every task without having to actively contribute. That explains why more responses were recorded for this task because, at the end of each activity, both active and passive participants were contacted to give an evaluation of the e-backcasting prototyping process. For this section, a total of 205 participants completed the impact assessments.

Feedback from participants self-report indicates that the level of influence and knowledge was inspired more by their participation in the scoping and re-visioning, while a few were inspired by the backcasting session. Responses showed evidence of openly reflecting upon their own thought process (before and after their participation). Several participants reported that the e-backcasting prototyping had stimulated them to "reconsider previous views on certain topics," and that the process "challenges pre-conceived ideas" and generates "new ways of looking at old problems." An in-depth reading of responses led to the identification of four processes in participatory e-backcasting that were strongly valued by participants. Participants reported that it reinforced the requirement for interdisciplinary collaboration and the combining of stringent policy or legislation with changing social norms and values around city planning. In this way, participants reported that they were stimulated to think of a broader range of options to leverage change outside the traditional boundaries of city administration and management, especially within areas such as urban planning, infrastructure provision,

environmental management and socio-economic change for city residents. Despite the widespread support for the on-line approach, some participants found it practically challenging.

The comprehensive findings from participants in this section stem from responses to the assessment questions posed after the iterations (see Appendix B). Assessment questions on the problem deliberation stage (involving SWOT and Scenario planning approach) are given in Table 5.19 and 5.20 which show the reported impacts of participation on participants' decision-making and change in skills. 110 out of the 239 participants indicated that the process impacted their understanding of how to achieve their daily goals while 111 participants suggested that the problem deliberation process also enhanced their ability to think critically and to synthesise fundamental knowledge and skills on sustainable city concepts.

Table 5.19: Impacts on participants' decision-making and change in skills

Impact category	WhatsApp		Facebook		Email		Blog			
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
It impacted on my understanding of how to achieve my goals	71		28		07		04		110	
		17		08		03		01		29
It impacted on my ability to identify resources needed to carry out my daily decision-making.	67		23		04		03		97	
		11		06		09		01		27
It impacted on my knowledge on how to overcome the difficulty in making complex decisions.	67		25		06		05		103	22
		09		07		06		00		22
It impact my family life, office work, academics and the use of social media	62		20		06		00		88	
		13		07		08		00		28
It enhanced my problem-solving skill	65		23		05		00		93	19
		05		07		07		00		19
Enhanced my ability to think critically	68		27		12		04		111	
		04		06		03		01		14
It allowed me to synthesise fundamental knowledge on sustainable city concepts	68		30		08		05		111	
		05		04		05		00		14
It provided the opportunity to practice my ability to apply backcasting	62		25		09		03		99	21
		09		06		03		03		21

Ninety-nine participants expressed satisfaction with the opportunity to practice and develop their ability to apply a backcasting approach while 29 participants were not sure if they understood what the backcasting approach means and thus might not be able to use its methodology in their future endeavours. With regard to impact on participants' skills, 111, 106 and 104 participants indicated that their abilities to

think critically, present ideas as simply as possible and interact with diverse groups of people was respectively enhanced. Samples of excerpts from participants' responses are presented below:

- **Response-** It has not only helped to develop my critical mind further to think outside the box but to see issues from different perspectives from other participants practical views on issues raised.'
- **Response-**It has helped me realise my ability to be persuasive
- **Response**-It has helped me understand my ability to participate in a group discussion and to see the ease with which diverse groups of persons can be brought together to achieve a particular goal.
- **Response:** It has inspired and given me a broader perspective on research especially the formulation of questions and tools for generating data required for solving problems.
- **Response**: It has made me understand more about sustainable development mainly from the Abuja context
- **Response**: Innovative method.
- **Response:** Interesting new points of view. In addition, in spite of having indicated to prospective participants that the study was an academically driven research towards a prototyped evaluation, criticisms were still voiced on the evaluation process especially on certain aspects such as:
- **Response**: We had shortage of expertise in some of the platforms for meaningfully discussion on some topics (on e-backcasting)
- **Response**: Some of the outcomes were too wide-ranging and also unclear (e-backcasting)
- **Response**: Additional time is required (general process)
- **Response**: The outcome of the entire process needs to be finalised and circulated before I can evaluate their practicality (general process).

Table 5.20: Impact and change of participants' awareness

Ways participants anticipates using awareness gained	WhatsApp	Facebook	Email	Blog	Total
Apply same approach or similar method in research	19	06	03	01	29
Learned to listen to peoples' opinion before any decision on any issue	15	04	02	01	22
Apply knowledge/skills gained in job, workplace, office, governance	11	03	01	00	15
Knowledge benefited will be useful in the future and has helped to be more critically minded in my thinking	06	06	02	01	15
Commence city planning forums similar to this	03	00	00	00	03
Enhanced my understanding on the need for sustainable development	09	03	02	00	14
Learned to prioritise in order of urgency	01	00	00	00	01
Enhanced my future decision-making process	03	01	01	00	05
Broadened knowledge on backcasting	7	02	01	00	10
Gained knowledge and so equipped for leadership and read to pass the idea to those in authority	02	01	01	01	05
Total					119

Generally, there was widespread satisfaction among participants on the impact of the entire e-backcasting prototyping process of which 29 attest to applying similar research methods in the future. 22 agreed to having gained awareness that the opinions of other people matter. 15 participants were also very optimistic on the practical implication of the process for their individual work in the future. Table 5.20 gives an overall view of awareness gained by participants from the exercise.

Participants' opinions about the e-backcasting as a technique

Another set of the evaluation process required participants to make an overall evaluation of the appropriateness, organisation and clarity of the tasks as presented by the moderator during the e-backcasting process (see Table 5.21).

Most of the tasks related to the envisioned findings, the focus of the study, balance between instruction and practice, the appropriateness of the various tasks, and clarity of instructions for every stage. In this assessment, the one and only primary key objectives was to deliberate on if the moderation and facilitation could have been done better or more effectively. Participants' assessment indicated that the facilitation process worked sufficiently well.

Table 5.21: The appropriateness, organisation, and clarity of task

Criteria	WhatsApp		Facebook		Email		Blog		Yes	%	No	%
	Yes	No	Yes	No	Yes	No	Yes	No				
I got deeper insight into the focus of the study.	42	03	30	06	05	06	02	01	111	46	26	11
Skills were presented in a helpful sequence.	33	06	25	06	06	09	01	01	106	44	26	11
It provided an appropriate balance between instruction and practice.	38	08	20	07	06	09	02	00	98	41	26	11
Guiding instructions were helpful when I had difficulties understanding the concept used.	38	05	13	07	08	06	00	00	91	38	28	8
Organised in a way that helped me learn.	37	07	22	07	07	05	00	00	96	40	18	8
It provided a mixture of explanation and practice.	42	05	27	06	03	08	02	01	104	44	21	8
Approach is appropriate for the level of exercise carried out.	34	02	30	04	05	08	03	00	100	42	22	9
Instructions included for every post were clear.	74	06	30	06	05	06	02	01	111	46	26	11

As shown in Table 5.21, 111 responses from 239 participants indicate that the instructions for every stage were clear and thus effective in providing participants with guidance on how to participate and what their expected role contribution was.

Table 5.22 shows participants response on rating the approach in terms of the exercise deemed most valuable to least valuable. Participants were to some extent

extra critical on the practicality of the backcasting results for city planning and other applications. This may have contributed to the moderately lower rankings of 59 assigned by participants to the e-backcasting stages. The deliberation of the present state of Abuja city planning and the re-visioning or scenario and key/mid-timelines were identified as the sessions with higher responses of 102, 132 and 132 respectively.

Table 5.22: Aspect of the e-backcasting found valuable or least valuable by participants

Valuable or least valuable aspects	WhatsApp		Facebook		Email		Blog		Yes	No
	Yes	No	Yes	No	Yes	No	Yes	No		
Deliberation on the present state of Abuja city	75	15	16	08	13	09	01	00	105	32
Re-visioning sessions.	67	17	12	04	22	03	01	00	102	24
Platform used in recruitment/interaction	61	05	08	18	05	11	00	00	74	34
Scenario/vision process	82	10	36	16	13	09	01	00	132	35
Key/mid timelines identified	82	12	36	06	13	04	00	00	132	22
E-backcasting strategy	40	10	06	12	13	09	00	00	59	31
Can the approach be used in the future for subsequent city planning	98	10	28	05	11	03	00	00	137	18
Total response									735	196

Grading of platforms in order of performance	Likert scale	WhatsApp	Facebook	Email	Blog	Total
	1(poor)	12	03	01	01	17
	2(weak)	18	05	00	00	23
	3(good)	09	06	03	00	18
	4(very good)	71	22	08	01	102
	5(excellent)	30	12	03	00	45
Total participants		140	48	15	02	205

The higher response shows the degree to which participants found the overall e-backcasting process, as well as the outcomes valuable, as they were able to voice out their opinions irrespective of what it was and also took note of others participants' ideas during the whole process. Participants also found the process more interactive, inspiring and informative across all platforms. The 'No' response indicated disagreement with the methodological process participants experienced as least valuable. For Facebook and email, the 'No' response of 18 and 11 scores respectively indicate a disagreement. The extent to which the deliberation of the present state of Abuja city and the re-visioning or scenario creation was regarded as inspiring was 75 (Yes) and 67 (Yes) for WhatsApp because participants believed that the time assigned to it was appropriate and as it was a much easier platform on which to engage.

Thirty-one of the participants indicated that the e-backcasting strategy was the least valuable because they could not easily follow the trend of activities. Participants were generally pleased with the hindrances (obstacles) and prospects (opportunities) that were recognised during the exploratory re-visioning or scenarios process. Participants could therefore claim ownership to the scenarios created and thus positioned themselves in the mind-sets of the scenarios before getting into the vision prototyping.

The effectiveness of combining the final future scenario and backcasting was high since it is basic to also determine the features that can lead to strategy building in pursuit of the desirable future. But even with that, only 59 participants reported being satisfied with the resulting e-backasting strategies, including its process and content. This was the least positive response across the related 11 questions, which possibly suggests that they were sceptical of the adaptability of the backcasting in the Abuja city planning approach. This explains why the process records low level of participation as analysed in Appendix D (even though the study did not intend to go into implementation). 22 participants were not clear on the relationship that the e-backcasting made between the target scenario/vision created and short-term decisions made in line with the 10 year mid-timelines and the policy actions needed (see Appendix D). Finally, 132 participants were comfortable with the use of the 50-year as the key time horizon and the combination of the assessment process and backcasting. Participants also made an overall evaluation on how the e-backcasting approach performed and the challenges it poses for participants. Generally, participants were excited about the e-backcasting process and active and passive participants who responded to the assessment task acknowledged the significance of e-backcasting, they believed it helped to fashion a strong link between the exploratory scenario process and the current decision-making needs.

The most positive findings were for the question about the extent to which the online approach unlocked new viewpoints on how one can think about the future. In response, 137 reported that the approach would be useful in future for subsequent city planning in Nigeria and would help acquire an enhanced understanding of the strategies needed. Though, 18 participants found the process to be not useful for city management and planning. A total of 102 and 45 out of 205 participants scored the process 4 and 5 on the Likert scale (see Table 5.22).

However, differing from the exploratory re-visioning and scenarios process, there were more disapproval on the e-backcasting procedure and outcomes. There were some critical notes, some of which were similar to those commonly encountered in face-to-face backcasting strategy (as evident from other empirical studies). This possibly arises from the fact that thinking backwards from ones future can be demanding. Others remained more directly related to the integrated e-backcasting approach (some shied away while others lacked interest thus leading to consistent exits and sometimes violation of the guiding principles, failure to limit contributions within subject matter, not mindful of time available for each task and failure to respond on time).

Table 5.23 gives a summary of what participants further identified as challenging issues that would be particularly relevant for the study. Most of the 24 responses under this category came from participants in the WhatsApp and Facebook platforms, where some instructions included for most posts were deemed to be clear, but a majority of participants could not read and stick to guidelines, hence creating distractions through inappropriate posts and unnecessary comments. The primary moderation and facilitation challenge was to do with making sure that participants are on track, as well as having to remind them of the rules and ensuring they do not stray from the topic of discussion. This role or task consumes a lot of time.

Twenty-four of the participants expressed difficulty in following the thread of the posts in order to marry the different planning ideas due to a limited knowledge of city planning, particularly with regard to Abuja. As a result, such participants found it more difficult to make sense of most of the (sub) topics discussed. Fourty-three participants felt that there were no specific actionable plans on how to remedy the current situation of the city. Although good suggestions had been made, they expected a more detailed logical framework of actions. However, that was an aspect that was outside the scope of this study. 2 participants from the WhatsApp platform found the lack of scheduled time for each task challenging.

Table 5.23: Challenges experienced through the prototyping stages

Challenges observed	WhatsApp	Facebook	Email	Blog	Total

Participants lacked understanding of the purpose of exercise, reflected in the disjointed expression of ideas	29	06	03	00	39
Participants did not visit the blog (passive participation)	05	01	00	00	06
Instructions for every post were clear, yet participants failed to read and stick to instructions hence creating distractions from the focus through irrelevant posts/comments	18	05	01	00	24
Some participants found it difficult in following the thread of posts and to marry the different planning ideas, found it difficult to make sense of most topics	25	16	02	00	43
The art of reasoning backward was not easy to master	03	00	00	00	03
Participants blame their lack of participation on time constraint	39	20	08	00	67
Posting questions concurrently without waiting on others before concluding on the subject question	21	10	00	00	31
Poor service/network provided, unstable power supply and difficulty in accessing internet facilities for prompt response to issues being discussed	22	11	04	00	35
Overwhelming lengthy write-ups and the traffic of information at their disposal to read making it difficult to fit into the flow of the cascading opinions/views of the crowd of participants with different backgrounds and expertise and exposure.	14	07	03	00	34
Failure to limit contributions to the subject matter	11	05	02	00	18
Earlier participation lacked proper grasp of the concept of the study, as some ideas lacked cognisance of the existing situation and precision	04	03	01	00	08
No challenge, everything was perfect	18	02	01	00	21
Some shy away because they lacked self-confidence or could not express themselves clearly in English	03	02	00	00	05

Their dissatisfaction focused on the fact that there was no agreed schedule by both participants and the moderator on when to cross-fertilise ideas and this was evident in the pools of messages coming during Sunday's worship and Morning Prayer times and midnight, thus making late-night messages very challenging to accept.

Responses from 67 participants specifically point towards the deficiency in timing as a key constraint towards realising their aim of fully participating at both the exploratory scenario and e-backcasting tasks. Participants also blamed their inability to keep track of activities on the fact that writing via handsets can be time consuming. This perhaps implies that implementing the e-backcasting process should be given more time and should be concentrated in one platform rather than across multiple platforms in order to enhance effectiveness in the participation process. When more time is available, it improves the chances of coherently working on the key strategy. This might also help in responding to the worries expressed by 60 participants who pointed out the fact that backcasting is a very demanding process to implement (see Table 5.23). In particular, it relates to the understanding or insight that the art of reasoning backwards (from present-to-future then back-to-present) is not an easy one to master.

Eight participants attribute tight schedules as a critical hindrance to their effective response to some of the issues on the topics of discussion. The number of posed questions were a significant challenge, and especially so for 31 participants who stated that the questions were too many. Others felt that the questions were concurrently posted without concluding the subject matter while others responded that the post was adequate for the task. About 30 participants blamed the weakness of the outcome on poor service provided by network providers, unstable power supply and difficulty of accessing internet facilities for prompt response to issues under discussion. 35 participants were overwhelmed by the lengthy readings and writing thus making it challenging to fit into the flow of the cascading opinions and views of the crowd of participants with different backgrounds, expertise and exposure.

Most participants could not follow the thread of posts such that 14 and 11 participants from the email and Facebook platforms respectively expressed concerns over participants' inability to limit their contributions within the subject matter, due to inadequate grasp of the concepts. 21 participants reported no challenges and noted that they were impressed by the new idea of engaging participants on a virtual platform to obtain information with ease. They were confident that the knowledge acquired would contribute towards personal development. On the average, 55% (132 persons out of 239) of the participants were satisfied with the prioritised desirable future identified (see Table 6.7). It is worth noting that in the course of the task, participants were quite positive about the rule that no argument was allowed during the idea generation stage of the process. Participants' adherence to this position was crucial towards promoting an atmosphere for creating as one of the key ingredients of envisioning the desirable future.

Table 5.24 shows some of the challenges observed, several adaptations on how to make the e-backcasting approach better and stronger as suggested by participants. 48 participants were of the opinion that more people (particularly experts) be enlisted into the forum for more harvesting of ideas. 21 participants suggested that a more stringent disciplinary approach be included. 46 participants also suggested that ample and adequate time for participation be provided by increasing the daily time scheduled. They also urged that interaction time should

be fixed rather than the open-time system applied to avoid overwhelming other participants who may not be willing to participate at certain times.

Table 5.24: Some suggested ways on how to improve on the on-line approach

Selected ideas	WhatsApp	Facebook	Email	Blog	Total
Reserve some sections exclusively for experts like planners who understand certain subject areas better	39	06	03	00	48
Widen the scope of research to accommodate other academic areas for other professions in the future to enlist more people in the forums for more harvest of ideas	38	15	6	00	59
It is commendable for the admin to have kept this forum going for this length of time	35	16	02	00	53
Some participants joined without sufficient idea of the subject matter; hence for good understanding of any area, it is advisable to put up a notice about next topic beforehand for effective contribution and quality inputs.	33	20	10	00	63
Pin interaction to a fixed time rather than the open timing system applied to avoid overwhelming other participants who may not be willing to participate at the time.	26	12	08	00	46
It should be made more formal for continuity through conferences/workshop/focus groups for better impact beyond academic postulation and grammar	40	20	00	00	60
Include more stringent disciplinary approach	12	07	02	00	21

However, several other suggestions did not closely align with the problems identified by participants. Towards the end a strong meaning arose from participation-response with an entreaty for action on important areas, such as;

- make the approach more interactive by engaging more with visual interaction, such that the use of text messages and main points should be in a summarised format
- put up a notice about next topic before the discussion proper so that everyone gets prior preparation in order to bring quality inputs during the discussion
- allow quality time for informing participants adequately before kickoff
- information's on what the basics is particularly when action needed to be taken can be obtained from individual backcasts
- discussions need to be well guided, and concepts need to be systematically identified and highlighted
- explain as to how well the concept can be applied practically in a developing-country city such as Abuja.

The next assessment question applied a Likert scale (from 1-not at all likely to 5-extreemely likely), to display the likelihood of the approach being recommended by a participant to other prospective participants. This was intended to facilitate the assessment of the level of satisfaction with the method as a whole (see Table 5.25). A total of 224 participants responded to this evaluations. Their responses indicates high likelihood for 74 participants who chose 'extremely likely' of these 45, 25 and 4 responses come from WhatsApp, Facebook and email respectively with none from the blog.

Table 5.25: Likelihood of the approach being recommended by a participant to other prospective participants

Likert scale	WhatsApp	Facebook	Email	Blog	Total	100%
Not at all likely	06	02	02	00	10	2
Fairly not likely	10	05	02	00	17	8
Likely	67	16	04	00	87	39
Fairly likely	23	10	03	00	36	16
Extremely likely	45	25	04	00	74	33
Total	151	58	15	00	224	100

Thirty-six responded 'Fairly likely with 23, 10 and 3 responses respectively coming from WhatsApp, Facebook and email. No responses were received for the blog. One hundred and ten responses (88%) for the email, WhatsApp, and Facebook platforms strongly agree that the e-backcasting approach was good. Overall, participants responded that this was a good approach and they would be willing to recruit more participants if given the opportunity next time. The most common complements and responses on the overall method as well as participants' willingness to repeat the process if called upon are presented in Table 5.26.

Table 5.26: Summary of participants' perceived quality of the deliberative process and understanding obatined

Dialogue	
Respect	•The discussion was prejudice free •None of the concepts/opinions raised put forward were seen as wrong or impractical
Trust	•When I spoke, others participants gave consideration to what I was saying •In the course of the exchange of ideas, I felt uncomfortable because of the behaviour of some participants •It is intellectually stimulating because the platform is for serious minded people with a strong knowledge base of the subject matter. •In spite of the fact that participants believed in different standpoints, everyone was treated with respect
Disagreement	•I think the information flow was outstanding because it expanded my knowledge on the subject matter, because of different opinions •Regardless of the fact that there were different ideas/opinion, participants found points of agreement on the elementary points •Some participants' outlooks on some topics were so diverse that disagreement arose within the group •Throughout the discussion, some certain participants emphasised the differences among themselves and the other participants much more than the platform's collective goal
Equality	•Everyone had equal opening to speak out and to make himself or herself heard •Some participants did not direct their opinions in the way they would have loved to •As a matter of fact, some participants dominated the discussion
Common good	•We all need some form of awareness on what way the physical environment works •Participating increases our information base, expertise and specialty in general •Participating empowers us to procure more knowledge about Nigeria and also help in the research •Participants strived to offer proposals that benefit the wider community •It's a welcome idea, as it is an easy way of data collection using ICT technology •The reason is to create more awareness and increase participation and understanding of the perceptions of others on the subject issue particularly on sustainable city planning •I am in support of the work and would encourage this work in any way possible because sustaining the urbanisation of Abuja has always been a subject matter that needs urgent attention •Participants were interested in spreading and separating their own ideas thereby making the chat cumbersome and lengthy • Some participants particularly those working with NGOs, CBOs and other oganisations wanted to advance their own interests
Reciprocity	•Participants were truly involved in the discussion •For many participants, articulating their ideas was more important than engaging in an argument with other participants
Knowledge/understanding	
Collective learning	•I think that the dialogue made me reflects on new outlook on the issues at stake •The exercise is educative, informative and impactful; a lot was learned on the platform daily hence worth sharing with all other city dwellers •Am willing to repeat the exercise because it is knowledge-driven and interactive. •Interacting with the other participants did not give me new insights on the topic •Though my opinion is different, the discussion led me to consider the views of the others in a more favourable light

Reflexivity	•Through the discussion, I increased my knowledge of the problem •I considered the suggestions from the other participants even though they did not match my opinions •The discussion did not convey to the forefront new opinion on the problem •I will recommend this exercise because; it not only adds value to participants. I think everyone should have some elementary knowledge of what a standard city should be. Just in case they are opportune to be involved in planning one someday
Understanding	•Some participants used complex language •Some participants appeared confused •Participants sought after explanations of some of the opinions expressed •Participating in this exercise has helped me to figure out the policy strategies required
Argument	•During the discussion the standpoints on most topics were sufficiently reasoned •I read almost all the chats, and I think it's something to benefit from as most of the people there seem to be older and wiser too, they give significant and exciting responses that I also have never imagined •Some participants made statements without enlightening us on the reasons for their position
Topic	•Participants' discourses kept to the subject at hand •Some issues raised by participants were not relevant to some topics under discussion •some individuals discourse gradually bagan to deviated from the initial topic •It will help in developing our cities because it is an insightful exercise that provides a medium for the exchange of ideas for inclusive decision-making and it's hoped that lessons learned will improve the efficacy of outcome of participation in decision-making process for Abuja •No knowledge is wasted as whatever one learns on this platform could come in handy in future. Learning is a lifelong process, and anyone who ceases to learn ceases to grow

Participants' willingness to be involved in a similar repeat process was strengthened by their positive state of mind regarding the influence the collective group discussion had on them and the open-minded and courteous interactions among the participants. The less favourable responses from participants reflects more on paucity or lack of time, limited access to persons with knowledge or awareness of sustainable development and Abuja design. It also seemed to imply a lack of knowledge on existing policy options, compared to the policy knowledge of experts. The exercise was thus viewed as being tedious and requiring intensive thinking and not many participants would be willing to do that.

Given that linking future visions to current decision-making and prioritising of policy solutions are both essential components of planning and management, it is somewhat not surprising that a few participants remained unconvinced of the value of conducting the process independent of the city's decision-making mechanism. In addition, the result may relate to the fact that the online approach did not limit participation to professionals or experts based on a broader planning or decision-making process. This might explain why a total of 10 out of 224 participants would see the approach as less impactful and thus 'not at all likely' to be recommended to other prospective participants (see Tables 5.24 and 5.25)

In summary, the final product from the series of participants' on-line activities in the process of working towards one prototyped vision for Abuja city was instrumental and especially working in the direction of behavioural transformation through education and social media. A good number were excited by the new concept of engaging participants on a virtual platform in order to solicit information with ease, and are hopeful it would impact personal development.

5.7 Conclusion

As described previously, participatory-orientated backcasting is commonly based on an innovative workshop technique. In contrast, prototyping the process of evaluating this study, participatory backcasting into an e-backcasting methodology in order to evaluate its capacity to enhance inclusivity and participation through widening participation opportunities for diverse participants as well as tapping into related impacts such as empowerment through new understanding, increased decision-making competence, or potential for creative adaptation to other applications. Through this process, participants were encouraged towards the

insight that thinking about the future is a safe and effective way to open up and clarify controversial topics and also give value to their desires. Speaking out also agitates for a sustainable city future based on the mind-set that the thinking about the future helps puts things in the right context for smarter decision-making. The commonly reported benefits gained by participants include change in views and knowledge-types on the situations, generating unanimity or charting conflicts, creating collective empowerment, shared knowledge and capacity-building, increasing legitimacy and participants support on decisions made on the resulting scenarios. The approach of navigating between platforms and their iterative modifications amid the stories created was a unique experiment, and the insights gained over the course of the whole on-line approach contributed to participants' understanding of strategy and priorities in the planning for Abuja's desirable future vision. This study therefore constitutes the first time that a set of scenarios were created via an on-line backcasting approach in Nigeria.

Overall, the findings of this assessment process suggest that participants view e-backcasting as a novel and attractive idea which is also adaptable. From the related analysis, participants pointed out that they learned most from the procedures that were used to create the scenarios (see Appendix D), using statements such as "acquiring knowledge around this new method was motivating". In general, participants were contented with the general method as well as with the detailed process of the e-backcasting approach. They seem to have understood and valued the approach, and they reported an understanding of the value in most of the results that were co-created and generated.

What was immediately valuable to participants seems to be the overall understanding of the needs for the approach to be included in the planning system and applied even more broadly in strategy and decision-making at multiple scales. Based on these findings, the most apparent strength of adapting e-backcasting as a technique is its ability to link future scenarios to present decision-making based on a more inclusive participatory process. The responses of the participants suggest that for e-backcasting to be most useful, it should take place within the context of a more extensive and actual/real planning or visioning process by the responsible/relevant political authority/institution managing a city such as Abuja.

6 CHAPTER SIX: CONSOLIDATION OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter presents the consolidation of sub-findings from previous chapters in order to derive the overall findings of the study in response to the research question. The chapter commences by way of an overview of the study objectives in addition to the significance of findings in relation to the four sub-questions of the study. A consolidation of the main findings of the study is reported against each of the sub-questions, followed by the overall merger towards the resolution of the main research question. The chapter then proceeds to derive the overall conclusions and recommendations. The chapter thus combines the sub-findings on the relationship of enhanced inclusivity and participants' awareness as well as readiness to act towards the application of the e-backcasting techniques as illustrated in Chapter 5 and Appendix D. Accordingly, the chapter is organised as follows:

- Research Overview and Objectives
- Overall findings in Addition to Adaptability of e-Backcasting Approach
- Limitations and Areas of Further Research
- Recommendations Emerging from this Study

6.2 Research Overview and Objectives

This study originated from the concerns reflecting from literature over the lack of inclusivity in governance and decision-making which in turn lead to major shortfalls in urban planning and development practice regarding the pursuit and attainment of sustainable city transitioning in Nigeria and especially for Abuja. Arising from this concern, this study explored the potential of applying action-research strategy, focusing on the adaptability of an e-backcasting process towards facilitating inclusivity in Abuja's urban development towards a sustainable city future.

The study aimed to investigate the adaptability of an online backcasting process (termed as 'participatory e-backcasting' in this study), based on readily available Web 2.0 technologies/internet resources as the primary tools for data collection towards the visioning and pursuit of an inclusive desirable future state for Abuja city (see Appendix D). The hypothesis emphasises on the weakening of the

commonly used governance style based on linear and rigid city planning processes which results into exclusion of stakeholders in decision-making and how this significantly weakens the chances of achieving sustainable city goals for Nigerian cities and especially for Abuja.

The rapidly significance of the rapidly maturing ICT or media tools and the potential for re-imagining city visioning (in a manner that contributes towards enhanced inclusiveness and broader participation) offers increasing potential for residents/participants in the related process based on a number of fundamental stages as set out in Chapter 1 (see Figure 1.1).

The study was therefore guided by the following sub-questions:

- What are the current global methodological approaches to sustainable city development (their principles and criteria) that could guide the process of inclusive bottom-up and top-bottom participation towards a desirable future vision for Abuja?
- What has been the level of bottom-up and top-bottom participation and inclusiveness in the previous methodological approaches used in the Abuja vision and implementation of the resultant city visions and plans to date?
- To what extent can the adaptation of backcasting to an online e-backcasting platform enhance such inclusiveness and participation for Abuja?
- To what extent could the enhanced inclusiveness impact awareness and sense of ownership of the vision among various participants during the e-backcasting application?

The key research objectives of the study were therefore conceptualized as follows:

- To appraise current methodological principles/criteria of inclusive participation and motivate for an inclusive pathway towards a sustainable city vision for Abuja
- To examine the past methodological approach used in implementing Abuja city vision(s) in relation to sustainability, participation, and factors that would affect the attainment of such visons(s) within a sustainable city framework
- To conceptualise and implement prototype-oriented action-research, based on an e-backcasting platform and evaluate the extent of participation and its potential for an inclusive city vision for Abuja

- To appraise how participation influences or impacts on participants' awareness and understanding of sustainable cities, as well as their sense of ownership of the sustainable city vision generated in the process

A discussed in Chapter 3, a multi-qualitative research approach was conducted in order to achieve the stated aim and objectives. The research objectives were addressed through the sub-questions and working hypotheses as presented in Table 3.12 (see Chapter 3). The research overview now links the discussion to the four stages;

Stage one: Background of the study

Chapter 1, the introduction chapter, introduces the study and presents the overview of this thesis. Herein, the context and the rationale of the study, which included the background of the problem, were elucidated.

Stage two: Literature Review

Chapter 2 established a theoretical background based on critical review of related studies which helped identify knowledge-gaps as well as the present state of knowledge concerning sustainable city development, governance, and e-governance, comprehensive city planning, master planning through forecasting practices and e-backcasting.

The literature revealed that governance and sustainable city development had become a rapidly evolving issue by mid-1990s and has since become an issues of professional dialogue because their meanings and implications that carry several promises and pressure on those responsible for related decision-making in our cities. Sustainability requires good governance and strong leadership that encourages both top-bottom and bottom-up (broad-based inclusive) participation at all levels in ways that advocate change and provide support to conventional governance institutions. On the other hand, governance is a crucial factor for the successful pursuit of sustainable city vision, programmes, and related transformation. Sustainability and management both ensure that transformative change is embraced, rather than been seen as a decree from above with minimal contribution or relevance to stakeholders who will inevitably be affected or impacted.

Furthermore, the appraised literature contributed to a forging of the link between sustainable city developments, inclusivity, and the benefits of participation backcasting and the shortfall of the linear-master planning approach towards sustaining city visions and plans. This facilitated for a comparison of the appropriateness between the two approaches as strategic planning tools for city administrators, residents and the planning authorities. Discussions within the literature review further examined Web 2.0 or social web technology primarily focusing on e-governance and e-backcasting at an operational level. Web 2.0 constitute of social media platforms which supported highly innovative and improved media through which different social groups can links and interact with each other in ways that contribute to a more open, transparent and collaborative governance process.

Participation in government programmes and decision-making processes in Nigeria almost absent, possibly due to extended periods of exclusion leading to citizens lacking faith in political leaders as well as the political system. This shortfall in governance has contributed to a significant setback in the socio-economic development of Nigeria and can thus be considered as the key reason for the under-development of most of its cities. As an expected reaction to this scenario, self-interest and individualism manifests and the inevitable result is that the masses lose total confidence in leadership and vision for their cities.

Even when plans get continuously produced, the vision will still not be achieved since all the critical fundamentals expected to be in place in order to address sustainable-city transitioning for Nigerian towns have consistently failed to materialise. To this effect, success in the adoption of Web 2.0 technology and the use of an e-government services approach depends, to a great extent; on how well the targeted users for such services and the citizens in general, make use of the tools and techniques. The essence of e-governance and the e-backcasting approach is not just about improving the system; but more so about empowering the currently marginalised and excluded, and thus whose voices are never heard primarily because all conventional channels of voicing them have been blocked. The technology becomes vital as e-governance get to rely more on use of the ICT tools now being deployed for diverse public social services with inclusion, and the institutional changes as the key goals. The approach has the benefit of providing clear, transparent, interactive, easy to implement and just/equitable solutions in the

quickest possible time frame especially if combined with e-backcasting technique or practices. The appraisal further captured the significance of adapting e-backcasting methods towards facilitating the solicitation and integration of bottom-up perceptions and knowledge of the diverse range of stakeholders or participants.

Stage 3: Methodology and Findings

The desire to explore the adaptability of e-backcasting towards facilitating inclusive participation for sustainable urban development is being pursued within the Abuja urban context based on primary and secondary data sources and guided by the research methodology as shown in Figure 3.12. The adopted qualitative (prototyped) action-research strategy were utilised for primary data collection with the participatory e-backcasting approach, open-ended questions, and case study approach as the key components. This section consolidates the findings on the significance of citizen involvement in decision-making as well as their role in urban management.

These techniques involved 302 consenting participants from both within and outside Nigeria including 20 of them in the diaspora in a prototyping of a mix of bottom-up and top-bottom participatory process. Archival documents on Abuja as well as books and journal articles were also appraised in Chapter 4 towards understanding of city governance practices in the implementation of the city visions especially with regards to sustainability, inclusivity and participation at an operational level. The appraisal was carried out through an assessment of Curitiba's experiences as a relevant example of sustainable city transitioning compared to the Abuja city as the case study. Findings on the comparative appraisal on the two cities contributed to the reported findings for sub-question 1 and 2. The appraisal then facilitated the identification of the crucial factors that either impede or encourage the adoption and implementation of the e-backcasting approach for sustainable city development for Abuja's urban development context and practice. The insights were then applied to guide the action-research iterations (first, second, third and fourth) followed by the impact evaluation as reported in Chapters 5 (see also Appendix D). Results obtained over the course of the prototyping process on the extent of participation/inclusiveness as well as the impact of participation-experience on participants' understanding and awareness were presented in Chapter 5 which addresses Sub-question 3 and 4.

Stage Four: Analysis and Discussion

The data collected from the first prototyping processes were managed using thematic analysis based on insights from appraisal in Chapter 4 while for Chapter 5, the second set of data emerged from the empirical e-backcasting, SWOT analysis and scenario planning analysis. This study highlights some fundamental factors with regards to participatory or inclusivity issues connected to urban development aimed at addressing and mitigating sustainability challenges facing African cities today. These factors constitute the critical drivers or outcomes of the challenges such as inequalities, municipal exclusions, corruption, policy inconsistencies and neighbourhood and spatial segregation. This study also identified that these outcomes can be linked to gaps in the envisioning and implementation processes, limitations in leadership capacity and forecasting practices which leads to re-occurring defects as demonstrated through experiences of Abuja city. The consolidation of sub-findings as well as the main contribution to knowledge is summarised in subsequent sections.

6.3 Consolidation of Sub-findings

The conclusions from the research findings are derived and consolidated according to the sub-questions as stated in Chapter 1 (see section 1. 6).

Sub-questions 1 and 2: Chapter 4 focused on Curitiba precedents (a good practice example of a global sustainable city transitioning) and Abuja case study appraisal in order to draw from the different experiences on various participatory and inclusive approaches in the implementation of city visions.

The process first identified many components of the current or prevailing practices towards inclusive participation in order to derive principles and criteria for an inclusive pathway towards a sustainable city vision for Abuja. From the insights of Curitiba's 40-years international study of transitioning experience, the critical need for re-thinking Abuja's visioning and planning approach through prototyped e-backcasting was motivated as the key objectives of the study. The transformation of Curitiba emerged from appropriate strategic, practical, inclusive and sustainable participatory planning approaches which helped the city authority to open up the black box of inter-relations between the rich and the poor. Inclusive participation and development imply a reiterative scrutinising of who is included and who is excluded from making their meaningful contribution towards improvement of

human well-being and society at large, and on what grounds such exclusion is perpetuated. This in turn allows for collaborative measures towards addressing such inequalities in society especially through rethinking the institutionalised relations between poor and rich (see Chapter 4, sections 4.3.1 and 4.3.2).

Although Abuja was envisioned as a modern city from scratch, it has experienced critical setbacks in its development pathway especially with regard to equality and inclusivity. This shortfall has been linked to the implementation approach in the pursuit of the city's vision which has been characterized by consistent social exclusion in governances and decision-making which in turn constraints access to infrastructure and services in the city. This has been systematically linked to the legacy of colonial urban development with its divisive urban form as commonly evident in Nigerian cities which are based on modernist planning paradigm (see Chapter 4).

As far as governance-participation within the FCT is concerned, residents mainly participate in development controls as individuals, companies, organisations, estate developers and prospective developers wishing to commence the development of plots allotted to them in Abuja. Aside from that, most of the management/governance processes are carried out by the development control division of the FCDA, STDA and the Plan Registry of the FCDA. However, in the last twenty years, community participation in decision-making began to emerge as a significant force in broader policy-making and political philosophy in Nigeria. This can be demonstrated by the improved attempts at involving CBOs, NGOs and similar organisations, compared to the extreme exclusionary approach used in the city's past. In spite of this noticeable change since the 1990s, there is still no clear structure or mechanism through which participation takes place, and even if there is, it is not legislated as one of the key requirement of governance and management process for the city.

Findings arising from the secondary data analysed show that all the approaches used in implementing the visions for Abuja from 1974-1989 and 1990-2017 demonstrate a critical gap/absence of inclusivity and participatory practices for sustainable city. The participatory components were observably absent in most of the approaches due to the unquestionable overdependence on the conventional master plan approach to achieve controlled urban development and management,

which has for a while now, proven to be highly ineffective. The entire planning and decision-making process has been primarily dominated by bureaucrats. In absence of a clear responsibility role, residents began to impinge on the authority and command-system of city administrators in their role as guides to the city development which in turn contributed to deviation from the master plan and the original vision for the city. There now appears to be severe breakdown of trust between the government and the public which urgently needs to be repaired. This could be achieved through promotion of shared feelings and engendering a new sense of inclusion of regional stakeholders, particularly those in the informal settlements within the city. It has therefore become indispensable to incorporate broader participation as one viable means of redressing the ongoing exclusion and marginalisation of the poor, and thus mitigating their alienation from the benefits of their labour as they contribute to the city development. The participation challenges for Abuja and other cities in Nigeria increased the understanding of the severity of the need for mechanism of participation in planning and related decision-making for sustainable-city futures more broadly.

Sub-question 3 and 4: The two sub-questions were linked to objectives on evaluating the extent of participation and inclusiveness achieved and also to appraise how participation enhanced participants' awareness and understanding on sustainable cities, as well as the preparedness for implementation of sustainable city vision for Abuja (see Chapter 5 and Appendixes B, C, D, E and F).

The need for a more inclusive participatory approach in decision-making and governance through a bridging across top-bottom and the bottom-up approach guided the study to the conceptualisation and prototyping of e-backcasting as a strategic tool for city planning, visioning, and sustainability practices based on methodical steps similar to the face-to-face backcasting but applying Web 2.0 social media tools (see Appendix B, C and D for the key tenet on how it has been engaged with for this study). The combination of different analytical approaches using tools such as SWOTs, scenario planning and e-backcasting with social-media tools or platforms helped prioritise participation and interactions with the objective of optimising inclusivity.

The methodology entailed a combination of Web 2.0 tools and backcasting (and thus to constitute e-backcasting) which thus led to enhanced creativity in

developing future scenarios and transition paths based on on-line techniques to facilitate the connecting of participants globally and locally. The scenarios created provided not just mere representations but more so the cohering of participants' contributions to the final target vision for future possibilities as well as reckoning with barriers and opportunities associated with the transition pathway for Abuja (see Appendix D).

It has constantly been argued that innovations or new ideas which contribute to sustainable development for the targeted beneficiaries should also entail the promotion of inclusiveness. To a greater extent, the application of e-backcasting thus corroborated with the gap identified through literature appraisal and thus contributed towards the initial claim the exclusionary practices within the Nigerian city planning and management processes. The procedure used in prototyping for enhancing inclusivity was based on a combination of primarily three elements, which are participants' knowledge and their creative contributions, the category of participants and the significance or impact of the experiences in relation to sense of empowerment among participants. When the elements are integratively combined in the process, not only empowered participants to develop their decision-making competence but also to establish a sense of confidence and thus in turn provided solutions which had integrated participants' knowledge. The three elements act in such a manner that the output achieved could be deemed or assessed to be inclusive.

The observable differences between participatory e-backcasting and the conventional face-to-face backcasting demonstrate that backcasting is more often used to engage expert-led and professionals to reach policy objectives, while the prototyped participatory e-backcasting focused more towards a bridging of expert stakeholders and lay-persons contribution and buy-in in decision-making for sustainable urban development. The prototyping process thus focused on the potential to increase inclusivity participation process both in terms of diversity as well as on-going commitment. The study not only evaluated the possibility of combining e-backcasting and exploratory scenarios in order to develop strategies for alternative futures but also allowed for diversity in participants' views facilitated by on-line social media tools which is a confirmation that e-backcasting improves participation and inclusion as stated in the assumption under section 1.7.

Participation process served several purposes. Firstly, just as experts and professionals are usually tasked with providing solutions, in this study participants were requested to give their opinions or ideas through a more creative-intense interaction. From the participants' interaction and contribution, qualitative information emerged with a quality that would complement the quantitative data commonly used by experts. The resultant working plans, opinions, and ideas were interactively developed among those who participated. The other reason for participation is to assist participant's transform themselves, in their outlooks on subject matter and views based on insight from their interactions. As the interactions and scenarios developed the resultant experience widen the knowledge of participants especially in relation to their daily living as well as their capacity for planning with regards to their own future in relation to the future of the city.

6.4 Overall Findings in Addition to Adaptability Potential of the e-Backcasting Approach

The significant physical transformation and distabilising socio-economic processes facing today cities require more participation and more future-oriented grassroots initiatives both in designing the possible future alternatives and in the actions for the realisation of the envisioned futures. Participation in urban planning started in the early 20th century, pioneered by researchers such as William Morris and Patrick Geddes. But more recently, the method of planning has evolved along with a range of other participatory approaches, with many scholars taking standard steps in an independent manner relating to or based on examination of the value, quality or importance placed on participation. A stance that defines more or less participatory outcomes as either appropriate, expected or acceptable, or others as wrong or unsolicited or impermissible. Ultimately agitating for people (both professionals and non-professionals) to be involved in decisions that ultimately impact on them such that their mutual interdependence can strengthen sustainable city transitioning process. The overall findings to the adaptation of e-backcasting as a strategic participatory urban planning tool for Abuja re-afirms the assumptions in section 1.7 in many ways which can be viewed from the following standpoints:

Adaptation of e-backcasting as strategy by planners towards broadening participation process

The prototyping and action-research approach of this study brings out the methodological process as the novel aspect of the study. The e-backcasting prototyped action research process can be categorised as a participatory pathway-orientated approach. When assessing the participatory ability of the e-backcasting approach, the emergent insights supports Habermas, (1984) and Koves's (2014) ideas of communicative-action being of primary significance in governance and decision-making.

The adoption and application of e-backcasting by urban planners would thus place importance on the need for a neutral space where diverse stakeholders come together to develop shared visions and goals and strategise primarily within the context of the planning authority they reside in. The advantage here is that the planners would no longer be the only experts involved in the process of visioning, decision-making and planning. Instead the whole governance and decision-making process would be founded collaboratively where those impacted by the decisions have full opportunity of influencing such decisions on the basis of team work.

Likewise the belief that where or when people are given the right opportunity or platforms they are capable cohesing their opinions after sufficient discussion. Even though there were intense arguments and extensively opposing views concerning particular topics amongst participants' in this study, they ended with a coherent image from their discussions and interactions. However, as noted previously, the most crucial goals or concern lies in the participation process and experience among a people of highly mixed and diverse backgrounds and how they were still able to frame issues that reflect their collective needs and aspirations.

Adaptation of e-backcasting as strategic planning tool using social media tools/platforms

Combining two fundamentally distinct methods such as the conventional backcasting face-to-face approach with on-line tools and platforms to facilitate participation and also develop future vision or scenarios was a very intensive process. The practical exercise was carried out with a diverse set of Web 2.0 on-line platforms (emails, Facebook, WhatsApp, and blog) as earlier presented in Chapters 3 and 5, and Appendix D. Initially, it proved extremely challenging to realise the exact sense of balance amidst the number of tools and procedures in addition to the activities to be prototyped for within the time allowable for data

collection stage of the study. Moreover, as an online participatory process with its own unique dynamics there was the added challenge of having to satisfy the needs and demands of participation within the ethical-research requirements which in itself entailed an additional complicating factor compared to the informal interactions in conventional social-media.

Setting the schedule and timing for every task, however, was tasking and even more tasking was entailed in getting participants' responses in a timely manner. Notably, the prototyping action-research was meant to test the applicability across varying online platforms and thus precisely the task of recruiting and keeping people to participate towards integrating their contributions towards a final target, known as the emergent and co-created future e-backcasting scenario. The approach was most successful across all tools except for the blog, where not all targets as defined at the onset could be satisfactorily met as initially planned. This aspect is further elaborated on under Section 6.5 and 6.6 of this chapter.

Adaptation of e-backcasting as strategy in impacting participants' awareness/understanding

Likewise, the overall and widespread satisfaction of participants indicates that the advantages outweigh the problems. The methodology presented was prototyped through four social media platforms with a wide spread of 302 participants with different cultural backgrounds and residing in different locations thus bringing their diverse experiences to bear in the prototyping-process. Though, as it is an extremely participatory method, it is expected to have been better embraced by participants had it been implemented, especially where conventional practices or tools in participatory had been engaged with. At the beginning of the process aside from encouraging participants to give their views and the fact that the time duration was widespread enough not to know what role an institute would perform, on the long-run allowed professionals in the various platforms to take part as discrete individual. As a result, the technique works just as well with nonprofessional as it does with professional. It further proposes that a combination of a wide-range of participants can be included in any e-backcasting processes subject to the contextual application. It also shows that the collaborative knowledge of many can absolutely outshine the monocratic contribution of a few. Nevertheless, given the right to deliberate without restriction – two groups of persons; one top-bottom

(government officials, workers) and bottom-up (ordinary citizens) could surprisingly come together to reflect on the same subjects matter. The deliberations are carried out short of professional/technical knowledge being considered to exercise control over multifaceted issues and processes such as sustainable city transitioning especially for Nigerian and African cities. Collaborative understanding developed out of the discussions is severely underrated in the world today, and one of the significant contributions of this research would be to reinstate the benefits of such knowledge/knowing.

The process of beginning the preliminary stage with a set of scoping tasks and graduating to present the state of Abuja via online platforms was able to gradually upsurge the number of iterative adjustments between scenarios that were eventually created and this in itself was a unique experiment. In literature, there are sufficient illustrations showing how existing set of scenes were used, but in all (documented) cases, it demonstrates how such scenarios were downscaled in successions, utilising the starting scenarios as boundary conditions. This study therefore constitute the first time where one scenario was selected at different time by participants from diverse social-media platforms.

Adaptation of e-backcasting approach as part of Abuja city planning practice by the city authority

Nigeria started with development planning or plans right after independence based on the rolling planning cycle between the 1960s and 1980s (characterised in the archives as the 1st, 2nd, 3rd and 4th national plans). The master plan approach (based on the comprehensive master plan concept) was established in the 1970s to address the Abuja vision (see Section 4.3.1 in Chapter 4). As a reaction or response to the chaos of Lagos, Abuja was created as the new capital city through the adoption of a Master Plan for Abuja which was to be implemented in phases. But unfortunately for Abuja and Nigeria as a whole, the master plan has failed to bring about the expected development and management envisioned (see substantiation in Chapter 1, 2 and 4). This was also manifested in the findings from participants' view under the e-backcasting process.

The shortfall in the use of the master plan implemetation challenged planners and city administrators start thinking and become very conscious of the need for a flexible approach to manage the city more so in a manner similar to that of Curitiba

(see Chapter 4). Also, the increased role of voluntary and pressure groups, NGOs, CBOs and other organisations and their effort at encouraging public opinion is now being recognised as a crucial component of planning and decision-making for Abuja. Branch, (1974) observed that as cities become larger in addition they become more complex and intolerant of rigid and linear decisions-making process such as entailed in the rigid compliance to Master Plan. With adaptation as the critical root of planning, e-backcasting can be adapted as a SPT to addressing the issues of visioning, developing and managing the future pathways to a sustainable city Abuja, as the FCT of Nigeria. The cumulative experience arising from such an approach could yield an African precedent case for sustainable city transitioning for African cities similar to Curitiba's experience in Brazil and Latin America

This study also presents the importance of co-creatively imagined visions in city planning and management process. In this study, images or scenarios appeared to be vital because they provided direction to the changing approach to achieving the target vision. The results also indicate that visions and their relevant actors/stakeholders co-evolve in a mutually interactive process (see Appendix D4, Chapter 5, Section 5.6 for details).

Centered on this, it is recommended that government as the supposed vital actor supports beyond funding knowledge development and facilitates the e-backcasting innovations towards visioning in a broader sense in order to stimulate further progress towards a sustainable city transitioning for Nigerian cities. An enhanced understanding of the characteristics of the e-backcasting approach and its relationship to future vision and sustainable city transitioning was demonstrated through the following key findings and insights:

- The main contribution of e-backcasting participation in this strategic planning process is that it included participants from multiple actor-groups such as different political parties, government offices or parastatals; area councils; private enterprises and the general public (see Chapter 5, Section 5.4 for details). In other words, there was no one dormant decision-maker in the prototyping process. Instead the prototyping used multi-disciplinary stakeholder interactions (without requiring representational mandate of an actor-group) in order to achieve sufficient congruence and higher-order learning. It fostered inclusive and active community engagement and collaboration, as most participants were not merely those with academic

backgrounds, or those with theoretical or methodological knowledge of the foresight process, but rather a combination of lay-persons drawn from both top-down and bottom-up categories of participants.

- The e-backcasting prototyping had process counts on the sincere and creative opinions of a mix of professionals, non-professionals, and lay-people. In the practical implementation phase of the methodology when individual participants' contributions are being solicited, the methodological understanding of the researcher is essential in moderating or facilitating the communication phase and makes sure that participants have a fair opportunity to make their contributions. The researcher also provides the guidelines for summarising the views of participants into a consolidated output of the process (see Appendix B, C, D, E and F).
- The approach has the prospects of contributing to the implementation of strategic planning as a new line of attack to planning in Abuja and Nigeria, as it facilitates participants' to articulate and share their opinions as well as future expectations, sense of responsibility and personal interest. This study evaluated this potential through the principles of action-research, which guided the prototyping of the e-backcasting process towards the envisioning of the desirable future state and related pathways for Abuja (see Appendix D). The findings indicate that this has the potential for strengthening practice in city visioning and sustainability practices as both professionals and non-professionals become motivated towards meaningful participation in the decision-making process.
- Whereas the prototyped approach fostered dynamic and timely contributions to decision-making; in retrospect, the process allowed the researcher to sense a critical shortfall in future-orientation among both non-professionals and political decision-makers as well as the common city residents in Nigeria. In addition, participants did not seem to be convinced that city administrators would genuinely build on their contributions through such prototyped process tools (see Chapter 5, Section 5.6 for details).

In line with the above insights, the study finds that additional prototyping iterations within formal FCDA platforms are critical towards determining a participatory e-backcasting approach can enhance participation and inclusivity in future visioning towards sustainable city transitioning for African cities. Moreover, further

creativities and strategy-change may be required to deliver sustainable-city inventions like this one into common practice within urban development and management. A key question arising from this finding re-counts on who must take the centre, knowing that the FCDA, rather than operating as the controlling body in the decision-making process, may accepts a more humble role of being one of the actors in public decision-making.

6.5 Problems Encountered in Conducting the Research

In the process of carrying out the study, a wide range of challenges were encountered and were consistently observed to allow the research identify strong and weak points with regards to the e-backcasting adoption process. The key challenges as substantiated in the subsequent sections were:

- The prototyping process at arriving at a target vision was a difficult one
- The degree to which the combined process was used was limited
- A solitary specific endpoint/desired vision for all four platforms is restrictive
- Policy aspect is hard for non-policymakers to comprehend
- Problems with integrating stakeholder feedback into the approach

6.5.1 The prototyping process at arriving at a target vision was a difficult one

- It was not a straightforward approach to put into practice because it was challenging to arrive at a consensus about the “desired target future vision."
- The SWOT process was associated with different problems, as far as the interaction with participants went which include difficulties in balancing internal and external factors, that is to say that the elements that are strengths and weaknesses, which make up the internal factors in the course of analyses are entangled with the external factors, and there are difficulties, particularly in decision-making, about choosing the alternatives for the strategies.
- Most features listed were rather general, for example, actors’ responsibilities were not explicitly linked to the elements identified. Additionally, not a single component appears fully vigorous, as there were fundamental inconsistencies in timing of participants to be able to handle that aspect in detail. For example most part of on the issue of infrastructural and technology provision pointed out in the backcasts, were within different ideas (see Appendix D).

- Even after arriving at a decision, an agreement that the desired future will be sustained may not be ensured, because local communities or government within the Abuja territory could decide to establish their desired future differently from the consensus. It is also likely that the administrators of Abuja city, in the future, might want to adapt new technologies and opportunities that appear along the way to their desired future not necessarily in line with the prototyped vision

6.5.2 The degree to which the combined process was used

- Generally, there were very few alterations to the over-all prototyping process under each iterative process. One significant deviation from the process was that the process of developing the backcast was cut short for the blog, email and Facebook platforms and not adequately charted as proposed in the WhatsApp platform. This was mainly because of lack of time, and participants' inputs were slow, while some began to exit the groups mostly because some of the participants found it difficult to understand the procedure of working backward from the future-vision. Another deviance was that not all platforms incorporated opportunities, and in some cases, the link with the exploratory scenarios was made less rather than into strategies)
- Working through more than one platform was cumbersome, overwhelming and tasking. It is advisable to deal with just one for proper maximisation of purpose. But there is a better advantage especially if the prototyping is carried out on a formal platform with adequate FCDA human resources. The essence is because government is able to meet up with both the financial and technological wealth withal to support the successful application of the ebackcasting approach at a larger spectrum.
- The overall process was time-consuming and a difficult tasks especially the recruiting of people for each platform. This challenge is linked mainly to the ongoing recession coupled with the non-payment of workers' salary which restricted the level of responses and consent obtained from potential participants. Many respondents refused to commit to participating due to the financial implications and time required for such an exercise especially bearing in mind that it was purely of an academic purpose or nature. This affected the nature of participation especially in terms of categories of participants that eventually got involved in the activity, even though it was reiterated that participation was voluntary and participants were not under stress on any

subject matter. In spite of the assurance given, most respondents expressed their disinterest in voluntarily participating.

- Participants acknowledged that the interaction/processes were taxing and mentally demanding, in particular they noted that leaving the realms of the present behind in order to lay emphasis on the normative vision for the future posed significant critical-thinking challenges. Whereas, this may perhaps indicate that the method is not well suited for important contributions from nonprofessional, it is clear that futures thinking literary from a backcasting perspective (as opposed to forecasting) is still scarce even among professionals.
- Another critical constrain was the low level of understanding of the concepts and context of the study focus as most participants had never heard of backcasting techniques nor have they participated in any planning or decision-making programme prior to their participation in the e-backcasting prototyping process. Detailed guidance and explanations were therefore essential before commencing on each task or stage of the prototyping process.

6.5.3 A solitary specific endpoint/desired vision for all four platforms is restrictive

- As noted earlier, working backward from the envisioned future was proved to be quite difficult for quite a number of participants in all four platforms. For example participants demanded that it is trickier to visualise 2067 than 2027. Therefore a sequential approach would be more straightforward, and the researcher had to constantly remind participants to work backwards during the e-backcasting session. This disrupted the ease with which the e-backcasting process went. It was also often difficult for participants for the different platforms to deal with the choice of the desirable future scenario that did not comfortably fit within the decisions made within their own platforms. In order to mitigate loss of confidence in the process, participants required constant convincing as to why the selection of the desired future end-point had to be a collaborative effort across all platforms. The process of selection and decision-making helped to demonstrate to participants how a less desirable future can be avoided. Good facilitation and support which spurs imaginations/creativity was therefore essential in such circumstances.

6.5.4 Policy aspect is hard for non-policymakers to comprehend

- Some of the strategy and policy aspects were difficult to grasp for non-policymakers partly because the common language used is English and secondly there is hardly adequate time to be persistent in community engagement projects. Policymakers and experts and those in authority within the Abuja city management and development constituted a minority among the participants, as compared to lay-persons participants. May be including an FCDA platform rather than a private researcher platform with additional policymakers will helps to make sure that policy features are better merged in the backcasts with actual policymaking processes. The inclusion of more politician-participants, in itself, can lead to a more considerable impact and results. However, the involvement of other participants in the same way is important, as they can introduce actions that are not connected with the policy. They also provided the continuity between the prototyped e-backcasting processes is needed to optimise (social/shared/collective) learning. On the other hand, if more participants are involved, it is likely to make it harder in ensuring that all voices are heard.
- The prototyping was not a straightforward approach to implement because it was challenging to arrive at a consensus about the “desired target future vision." Even after arriving at a decision, an agreement that the desired future will be sustained is not ensured, because local communities or government could decide to establish their desired future differently from the consensus. Not throwing discarding the fact that the desirable future vision requires flexibility or adaptability and as such cannot be treated rigidly like a master plan. Worse still, is a likely scenario that the administrators of Abuja city, in the future, might want to adapt new technologies and opportunities that appear along the way to their desired future, not necessarily in line with the prototyped future envision. Below are observations made from the different platforms that explain this further:

• It was a challenge to delineate one particular scene or vision as the preferred scenario that made sense for all four platforms. Some participants would have loved to use a dissimilar scene, to better contest as the final prototyped vision/scenario • The difference amid the actions and goals proposed was complicated. All the platforms faced same drawback when attempting to adapt between the goals and actions, e.g., whether the waste management is an action or a goal • The policy feature was demanding for non-policymakers, non-planners, non-professionals and ordinary participants, e.g., therefore, participants wanted to have more time as they felt unconfident during the policy making process

- In the course of the preparation of strategies, most participants lacked relevant knowledge and experience on available policy instruments like those well known in sustainable cities like Curitiba

6.5.5 Problems with integrating stakeholder feedback into the approach

- *Earlier in the fieldwork;* some of the respondents reported that the questions were too technical and some topics posted were deemed to be lacking clarity. Some questions were also said to be too lengthy, unclear and unfamiliar; thus participants were thus unable to understand what was required, which in turn affected their opinions about the information that could have been derived from their interactions. This feedback enabled the researcher to mend and simplify the questions and the presentation of topics as well as the interactive process between the researcher and participants in order to boost future response rate. As a follow-up, the sentence structure and the grammar were also adjusted.
- *Not capable of making a contribution:* In the case of passive participants who apparently did not actively express their ideas, their voices were not heard in the decision-making process. In most cases some were not able to contribute because of the feeling of in adequate expertise. In the case of the active participants, the dominance of overshadowing other participants' contributions from some participants input tended to limit the opportunity to contribute equally. This tends to deny participants the chance to make meaningful contributions which also promotes passive participation.
- *Not adequately interpreted or represented:* There is the risk of misunderstanding or distorting of participant's knowledge and perspective since the process allows or require that the researcher interactively engages with participants in order to ensure timely resolution of any unforeseen problems concerning interpretation of task or representation of their contributions. Participants' knowledge and views may also face the challenge of not being sufficiently understood or represented in the city planning process by administrators and the experts; especially when the knowledge and perspectives that those in authority and professionals carry into the process does not connect to the knowledge and perspectives (worldwide) of the participants. There is therefore the risk that participant may not always recognise their perspectives out of the integrated product or outcome as they may not be satisfactorily presented in the expected and conspicuous manner. There is also the danger of misapplying very important categories in certain assessment since the over-all categories being used would most likely sprout

out from a field that is somewhat distant from the participants' field or worldview.

- *Not properly integrated:* The risk of not sufficiently incorporating participants' awareness and viewpoints seems higher in the case of passive participants. The need and aspirations of such participants might therefore not be well reflected in the outcomes. Awareness regarding these potential problems requires focused attention to this specific challenge of the e-backcasting process in order to avoid or deal with it. Even though it is not realistic to expect active participations by all, there needs to be clear strategy of transforming passive participants to active ones.
- *Bad expression common to social media;* It was noticed that there are some participants who use popular abbreviations such as 'lol', 'lmao', 'g2g', 'asap', uwc and similar short-cuts commonly used on-line to write sentences. Some participants are also so used to using 'Nigerian Pidgin English' as a form of chatting that they do not know how to make correct sentences in English any longer. Such diverse manner of self-expression (those which significantly depart from common English usage) made data compilation and editing difficult and time consuming with the attendant risk of misinterpreting the intended contributions.
- *Problem with secondary data collection:* Due to security concerns in Nigeria generally, accessing information for research purposes is usually considered sensitive and therefore, only trusted people are normally allowed to obtain information from government documents especially on planning issues. As a result, the researcher encountered an unending bureaucratic process before gaining access to the data required mainly because research is commonly regarded with suspicion by most government or authorities (officials and politicians alike).

6.6 Areas of Further Research Emerging from this Study

Until now, there is still the absence of a well-defined approach/mechanism towards tackling the challenges of inclusivity within the Abuja urban development process as a whole. The study provides a comprehensive perspective to the current Abuja urban development practice in relation to inclusivity and participation principles/criteria. In response to this ongoing challenge the prototyping of e-backcasting was implemented within an action research approach but based on the researchers' platform rather than within the formal framework of FCDA. It would

be more enlightening to conduct further and rigorous in-depth prototyping using the formal FCDA platform as well as for other cities in Nigeria and other African countries, in order to help refine the approach in terms of functionality, applicability, and reliability amongst others.

Due to the specific constraints experienced in this study, its key limitation is that action-research study being carried out in four on-line platforms simultaneously would necessitate required extended time frame within which participants would give inputs towards a more comprehensive finding. Given that the study employed a short-term action-research process to capture the research data, it is possible that the four iteration processes used in generating the primary data may have entailed useful information on sustainable city transitioning practices that may have been missed. This might therefore entail limitations in comparing with existing studies within the same context especially where other studies may have been conducted over an extended period. Future studies can therefore explore the significance and implications of a longer time frame or the use of one on-line tool or platform as against the combined set as applied in the study.

6.7 Recommendations on how to Enhance the Adaptability Potential of e-Backcasting

This section presents the pertinent recommendations towards further investigation of the adaptability potential of e-backcasting as a strategic planning tool. The recommendations are:

- There should be collaboration and inclusive participation (by all those in authority, as well as citizens and planners) in the process of preparing for the prototyping of e-backcasting in order to solicit and capture the views and opinions of all stakeholders willing to participate in the envisioning and implementation process. In essence it is recommended that capacity-building for city managers be approapriated
- Recruitment should be rigorously inclusive to ensure both systematic awareness of the process as well as active participation
- If the e-backcasting approach is sensitively adapted it could offers possible assistance to the city administrators and planners towards realising other mechanisms of city plans tied to the aim and objectives of enhancing

participation in the urban development and management, especially on pathways for sustainable city transitioning

- Within the background of this study, prototyping of the e–backcasting process did not reach the level of detail that would be required to feed straight into Abuja city visioning and management decision processes. As a result, a mere 59 participants (out of 302) found the resultant backcasts useable for Abuja city visioning and management planning as reported in Chapter 5. The addition of more office-bearers could overcome the difficulties with the policy content and also make the e-backcastings easier to mainstream into urban policy processes. As a subsequent step to make it relatively easier it could be prototyped and scaled within e-governance platform.
- It is recommended that future e-backcasting exercise could be limited to one social media platform at a time in order to facilitate a more robust interaction, instead of engaging all four platforms simultaneously. This would also consent to allowing sufficient time to addressing vital issues regarding roles and responsibility, costs, and implementation procedures. When narrowed to one platform, it would almost certainly be useful to measure the impact of the alternative strategies based on tools such as cost-benefit analysis per scenario
- It is essential to hold onto to the fact that the same group of participants should develop the exploratory scenarios in order to internalise the procedures in their thoughts completely. In addition, it is also the first step on the way to opening up participants' views on likely futures and the worth of creativity which might in turn, lead to more inspiration in subsequent e-backcasting future processes
- Further studies on the instrumentation and other variables connected to the dynamics of prototyping e-backcasting and the related follow-up activities in terms of how they relate to e-governance concepts. Participant contribution, knowledge, vision expansion and network creation are important, but more academic and theoretical work is needed, especially about the processes and mechanisms that generate and shape continuation and outcomes of e-backcasting both at prototyping stage as well as in subsequent roll-out stages in future

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Appendix A. Presentation of the Key Theoretical Issues that Guide Secondary Data Capture for Sub-Question 1 and 2 (Chapter 4)

Key theoretical issues and attributes measured	Abuja		Curitiba	
	Archival document/supporting literature	Themes discussed	Archival document/supporting literature	Themes discussed
Issue 1: The visioning attributes and related sustainability outcomes: •Historical account of city vision and future concerns •Broad stakeholders' participation, •Cultural/ physical significance of the vision, •Clarity of vision and design process •Dialogue and public participation	•Master Plan of Abuja (1979) •Development control standards •The 1999 review of Abuja master plan •Area councils/STDA development policy and standards •Trends in ministerial reforms from 1976 to 2016 on infrastructural provision (health, education, transportation and others). •The 1999 Nigerian constitution/legislative framework • The 1978 land use law	•Abuja visions, background and context understanding	•Rabinovitch and Leitman (1996) •Levinson et al. (2002) •Lowry (2002) •Hidalgo (2003) •Macedo (2004) •Pienaar et al. (2005) •Taniguchi (2006) •Lundqvist (2007) •Suzuki et al. (2009) •Suzuki et al. (2010) •Lindau et al., (2010) •Dixon (2011) •Cohen (2011) •Klink and Denaldi, 2012 •Soltani and Sharifi, 2012 •Gustafsson and Kelly (2012)	•Curitiba visions, background and context understanding

	Other Supporting secondary data source: •Adama (2005) •Aguda (1975: 27) •Ebo (2006: 61-62) •Kenzo-Tange and Urtec (1981) •Oluwole (2016: 21-27) •Elleh, 2014: 93) •Adeponle (2013). •Ikoku (2004) •Abumere (1989) •Obateru (2004: 26-36, 29) •Osuocha and Njoku (2012:1219-1229) •Jiriko, Dung Gwom and Wapwera (2014). •UN-HABITAT (2007) •United Nations Human Settlements Programme (Un Habitat), 2011 •Taylor (2017). •COHRE and SERAC (2008:.52) •The Courier Mail (2012: 70) •Wardner (2004). •International Planning Association (1997)			

Key theoretical issues and attributes measured	Abuja		Curitiba	
	Archival document/supporting literature	Themes discussed	Archival document/supporting literature	Themes discussed
Issue 2: Participation and inclusive attributes assessed: •Effective and broad citizen participation •Good urban governance recognised by inclusive decision •Equitable impact of plan on social transformation •Policies that allow citizens improve their economy with physical improvement on the city •Strategy that allow the city to promote growth •Offers citizens right to full and equal participation regardless of ability or disability •Offers resident opportunity to shape their own environment in ways that meet their own needs through their direct involvement •Application of creative inclusion of relevant perceptions than the use of mechanical inclusion of people. By using participatory principles to	Same comments as above	• Pre-visioning/sustainability era (from1974- 1989) •Military regime and decision to relocate capital city •Aguda committee Report •The Philosophy behind the development of Abuja as a new F.C.T •Appointment of international consultants (IPA) •The master Plan/City structure design •Creation of FCDA •Development control •Satellite town development • Post-visioning/sustainability era (1989-present) •Resettlement Programme •Integration Programme •From Integration to Evictions •Privitisation The Relocation of the FCT from Lagos to Abuja city 1991.	Same comments as above	•The integrated transport network •Parks system •Recycling and Local waste management system: •Local environmental consciousness and citizens' participation. •Curitiba's people oriented urban planning practices •Curitiba's inclusive governance and leadership approach •Curitiba's all -inclusive approach to sustainable city development

establish ongoing participatory processes(top-bottom/bottom-up) •Expertise and leadership acting as guide and not on top of the decision-making processes. •Equity principles with multiple inputs from the community •Ensure high quality dialogue using team spirit and diversity in deepening understanding, building relationships and expanding possibilities? Most public forums need good facilitation to ensure •Availability of good facilitators of public forums to ensure high quality dialogue •Use positions and proposals as grist for exploring the situations they were created to handle to deepen understanding and relationship so that new and better solutions can emerge •Help people feel fully heard through active listening, non-violent communication, and dynamic facilitation		•The new 1990 National Housing Policies •Vision 2010 and Ministerial Reforms •The Creation of Satellite Towns Development Agency (STDA) 2003-2008 •The coalition of NGOS, CBOS, and Government •Departments (2008) •Social Housing Programme (2006) •Revised Resettlement Policy (2006) •The Seven Point Agenda and Ministerial Reforms •Change Agenda and Ministerial reforms C) Assessment of the level of sustainability and inclusiveness/ participation at various stages/era		

Appendix B. Selected Open-Ended Questions that Guide Data Collection for Sub-question 3 and 4 (Chapter 5)

Step1: Preliminary and scoping stage

The first set of questions, were used as scoping questions to prepare participants for the other exercise while also testing their understanding and knowledge on sustainable development concepts

Focus	Questions
• Prior to your participating in this exercise, what level of knowledge did you have on sustainable development	• (a) A little. • (b) So much • (c) Never, None at all • (d) Just knowing through this platform
• Have you ever visited Abuja before now	• Yes • No
• Do you reside in Abuja	• (a) Yes • (b) No • (c) Diaspora-I reside outside the country
•) If 'yes' for how long have you lived in the city • If not residing in Abuja, could you tell us the city where you reside	• (a) Since inception as the capital for Nigeria- 41yrs now • (b) In fact I was born and bred in the city ,over 41yrs now • (c) Moved in since 1991 when the seat of governance moved in- in the last 27yrs (• d) I have lived in the city since 1999 at the onset of democracy- 20yrs now • (e) When late president Yaradua took over government in 2007-close to 10yrs now • (f) From 2011 till date-7yrs now • (g) 2015 till date-in the last 2 yrs. • (h) Others specify....,
• As a citizen of Nigeria and before participating in this exercise did you have any idea about the vision and plans for Abuja	• (a) Yes, a lot • (b) Quiet a little • (c) No, not at all • (d) Just a little through this platform • (e) A lot-through this platform • (f) Others specify....

Step 2: Problem orientation

The next table below provides a preliminary agenda and question that was applied for obtaining information on the problem orientation.

Topics	Questions
• Enhanced participatory governance and decision-making	• Explain using instances • What future would you desire for Abuja?

	• What should be the level of control of citizens in this re-visioning, and planning process of Abuja city development?
• Urban form and quality of built-environment	• Do you think the housing arrangement for Abuja meets the expectation for a modern city? • What kinds of challenges are common with electricity supply in Abuja?
• Infrastructure and services	• Explain using instances • What future would you desire for Abuja? • What should be the level of control of citizens in this re-visioning, and planning process of Abuja city development?
• Socio-economic and well-being,	• Explain using instances • What future would you desire for Abuja? • What should be the level of control of citizens in this re-visioning, and planning process of Abuja city development?
• Environmental and resource conservation and divides of the city and physical implication on its developmental pattern.	• The failures of policy on the environment and implementation raises some fundamental questions: • Who are those responsible for the current state of the environment? • Why are the city parks and open spaces left unkempt? • Why are refuse everywhere? • What will you say is encouraging about the present state of the environment? • What is negative about the present state of the environment? • If given the opportunity what radical approach will you use in dealing with the issues of parks and open space, refuse dump

Step 3: Define and establish the target/future vision

At this point the desirable future vision becomes the vision that must be engaged with using backcasting technique. At this stage, e-backcasting analysis guided by another set of open-ended questions is engaged with. The following questions are the e-backcasting questions used to carry out the third task:

Focus	Questions
• The essence is to ascertain what needs to be done over the next few years to ensuring that all plans are on course towards achieving the targeted scenario/vision.	• Explain using instances • What future would you desire for Abuja? • As a participant in this forum, if given the opportunity to decide on a long-term and in a holistic manner -Given the challenges that were enumerated in this platform under: environmental quality, urban form, socio-economic well-being, governance and participatory dimension in decision -making and so on. • Can you please state how you think this vision can be realised?

- What opportunities will this vision allow?
- Please in one sentence give a name to the vision
- What specific goal(s) and objectives would you suggest for the vision in order to facilitate the cities moving from its current state?
- What is the possible weakness of this vision you suggested above?
- What could be the possible obstacles of achieving your target vision for Abuja?
- The question now is how many years do you think it will take to make Abuja the future you most preferred? Choose one key timeline.

(a) 50 yrs. (b) 75 yrs.

- Please, choose one mid- term yearly plan that can be used in
- Facilitating the attainment of this preferred vision for Abuja.

(a)5 yearly mid-term plans
(b)10 yearly mid-term plans
(c)15 yearly mid-term plans

- Why are these time horizon you choose significant to look at?
- What could be the future implications of choosing these key/mid W term horizons?
- This question is directed to those who sent in their visions. As one of the participant did your vision align with any of the 9 downscaled visions listed above? Yes, or No
- Mention strategies needed to be undertaken in order to ensure this vision is achieved and sustained within the specified key time indicated above.
- In your own opinion looking at the enormous challenges and the importance you attach to attaining the most preferred vision, what would be the most paramount strategy to achieving vision within the first 10 years from 2017 to 2027?
- In your own opinion looking at the enormous challenges and the importance you attach to attaining the most preferred vision, what would be the most paramount strategy to achieving vision by the 2nd mid-timeline from 2027 to 2037?
- In your own opinion looking at the enormous challenges and the importance you attach to attaining the most preferred vision, what would be the most paramount strategy to achieving the vision by the next 3rd mid-timeline, from 2037 to 2047?
- In your own opinion looking at the enormous challenges and the importance you attach to attaining the most

preferred vision, what would be the most paramount strategy to achieving the vision by the next 4th mid-timeline from 2047 to 2057?

- In your own opinion looking at the enormous challenges and the importance you attach to attaining the most preferred vision, what would be the most paramount strategy to achieving the vision by the next 5th mid-timeline, from 2057 to 2067 (the 50th year which is the target year)
- What could be the major concern in the process of attaining the most desirable future vision for Abuja?
- What is most important about this desirable future vision?
- What understanding can you draw from the proposed future vision chosen?
- Who can make this change happen?

(a) Change in governance style
(b) Citizens
(c) Leaders,
(d) Others

- What should change?

(a) Style of governance
(b) Leadership
(c) Citizens
(d) All

- Please give reasons for your choice?
- Who benefits and who loses from this future that is developed?
- What are the conscious strategies that can connect actions and the vision together for each mid-time horizon?
- How do you predict stakeholders are likely to respond to changes in vision, their policies and implementation?
- What should be the level of control of citizens in this re-visioning, and planning process of Abuja city development?

Step 4: Participants demographic information

The following questions are to guide the demographic enquiry and assessment of the level of inclusiveness of participation.

Focus	**Questions**
• Please tick the age bracket you fall under	• (a)18-24 • (b) 25-39 • (c) 40-54 • (d) 55- 64 • (e) 65 and above

- What is your gender?
  - a) Male
  - (b) Female
  - (c) I would rather not say
  - (d) Gender-neutral
  - (e) Other….
- What is your civil status?
  - (a) Married
  - (b) Single
  - (c) Divorced
  - (d) Common Law
  - (e) Separated
  - (f) Widowed
- Are you a citizen of Nigeria? Yes or No, if yes, which category of citizenship do you fall into?
  - (a) By birth
  - (b) By registration/marriage
  - (c) By naturalisation?
- If by birth, what ethnic group do you identify with?
  - a)Yoruba
  - (b) Igbo
  - (c) Hausa
  - (d) Other, specify
- Are you resident in Nigeria? If yes, which state?
- If outside Nigeria, Specify country?
- What religious group do you identify with?
  - (a) Christian
  - (b) Muslim
  - (c) African traditional religion (Paganism)
  - (d) None
  - (e) Other, specify
- Do you experience any form of sensory, physical, or mental disability? Yes or No
- If yes, into which category does your disability fall?
  - (a) Mobility
  - (b) Speech
  - (c) Sight
  - (d) Developmental
  - (e) Hearing
  - (f) Not applicable
  - (g) Other (specify)

- What is the highest level of education you have completed or the highest degree you have received?
  - (a) Less than high school degree
  - (b) Grammar school
  - (c) High school degree or equivalent (e.g., GED)
  - (d) Vocational/technical school (2 year)
  - (e) Some college but no degree
  - (f) Associate degree
  - (g) Bachelor degree
  - (h) Graduate degree
  - (i) Doctoral degree
  - (j) Professional degree (example MD, JD)
  - (k) Other, specify
- What professional category would you identify yourself with at the moment?
  - (a) Managers
  - (b) Professionals
  - (c) Technicians and associate professionals
  - (d) Clerical support workers
  - (e) Service and sales workers
  - (d) Skilled agricultural, forestry and fishery workers
  - (f) Craft and related trades workers
  - (g) Plant and machine operators and assemblers
  - (h) Elementary occupations
  - (i) Armed forces occupations
  - (j) Other, specify
- Which of the following categories best describes your employment status?
  - (a) Employed, working 40 or more hours per week (full time)
  - (b) Employed, working 1-39 hours per week (part time)
  - (c) Not employed, looking for work
  - (d) Not employed, NOT looking for work
  - (e) Full time student
  - (f) Self employed
  - (g) Retired
  - (h) Homemaker
  - (f) Other, specify

Step 5: Assessment of the e-backcasting/learning/impact by stakeholders

In wrapping up of the broad based participatory e-backcasting exercise, the following activities define the essence of this section:

- The major objective is to assess the exposure stakeholders would have encountered while participating in the exercise by thinking behind the method and how it can be used to carry out future planning for any city or any other situation
- This is to ascertain whether the basics of the method applied have been well understood such that the process can easily be explored on a personal ground.

These sets of selected questions act as a form of backcasting process debriefing and ideas gained will leverage the results of the e-backcasting session, and impacts on participants thought on how to broadly share or disseminate the backcasting approach to peers, family or clients and apply the approach to their daily living.

- Prior to your participation in this exercise have you ever heard of backcasting approach and technique? (Please see definition in the help box for clarity).
  - Yes
  - No
- Have you ever been involved in any formal or informal planning activity prior to your participating in this process?
  - Yes
  - No.
  - If 'yes', how different or close was the process from this one?
- Prior to your participating in this online exercise, how much information that you never knew about backcasting approach do you now know?
- Please give examples
  - (a) All of the information
  - (b) Some of the information
  - (c) Most of the information
  - (d) A little of the information
  - (e) None of the information.
  - (f) No idea
- How would you rate the e-backcasting process as you experienced it?
  - (a) Excellent
  - (b) Very good
  - (c) Good
  - (d) Fair
  - (e) Poor
  - (f) Not sure
- How easy was the e-backcasting interactive participation as you experienced it?
  - (a) Extremely easy
  - (b) Quiet easy
  - (c) Moderately easy
  - (d) Slightly easy
  - (e) Not at all easy
- Did you learn anything from participating?
  - Yes
  - No
  - If yes, what were the most useful things that you learned?
- How well did you understand well the basics of the approach?
  - Yes
  - No.
- Can you explore this process for personal use?
  - Yes
  - No.
  - If 'No', please explain the gaps you still have with understanding the approach?
- Will the approach be useful for subsequent Nigerian-Abuja city planning and management?
  - Yes
  - No
- Were the backcasting results linked to present daily decision making?
  - Yes
  - No
- What part of the e-backcasting approach did you think worked better?
- What part of the e-backcasting approach did not work out well? Please give examples?
- What could we do differently next time?
- Would you say that your ideas represented in the final outcome?
- Are you satisfied with the resulting strategies?
- Are the backcasts useful for your daily planning?
  - Yes
  - No
- Did you find the backcasting experience useful for your daily life in future

	• If yes, how are you going to use the knowledge gained in your personal life?
• How many of the online platforms/tools did you used in this process?	• (a) WhatsApp • (b) Face book • (c) 2go • (d) Email • (e) Blog • (f) Twitter • (g) LinkedIn • (h) Others (specify)
• How did you get to know about this online exercise?	• (a) What Sapp • (b) Face book • (c) 2go • (d) Email • (e) Blog • (f) Twitter • (g) LinkedIn • (h) Researcher • (g) Others (specify)
• About how many of your "friends" on social media have you introduced to this interactive exercise?	• Mention in number.
• Would you like to receive additional information regarding the final findings/report of the process? Please include your email here (optional).	

Appendix C. Recruitment, Participation and e-Backcasting Schedules for each Iterations

Table C1. Email platform (First iteration)

Sought consent and recruitment of participants from 1st September – 30th September 2016			**First activity sent to 26 participants 1st October 2016**			**1st Reminder to the remaining 21 on 9th October 2016**			**2nd Reminder to the remaining 15 on 15th October 2016**			**3rd Reminder to the remaining 13 on 23rd October 2016**		
			Activity/Schedules (Sch.) I: Step1: Preliminary and Scoping stage Step 2: Problem Orientation			Activity/Schedules (Sch.) II: Step 3: Define and Establish the Target/Future Vision			Activity/Schedules (Sch.) III: Step 4: Assessment of the e-Backcasting /Learning/ impact by participants			Activity/Schedules IV: Step 5: Participants Demographic Information		
			Week I: 1st October 2016-7th October 2016.			Week II:8th October – 14th October 2016			Week III:15th October -21st October			Week IV:22nd October - 28th October 2016		
Week	Recruitment request	Consent obtained	Daily	Daily record of Active Respondent	Daily record of Passive Respondent	Date	Daily record of Active Respondent	Daily record of Passive Respondent	Date	Daily record of Active Respondent	Daily record of Passive Respondent	Date	Daily record of Active Respondent	Daily record of Passive Respondent
Week 1 (1st -7th)	13	8	1st	02	24	8th	00	21	15th	00	15	22nd	00	13
Week 2 (8th-14th)	12	07	2nd	01	23	9th	03 (responded)	18	16th	01	14	23rd	00	13
Week 3 (15th -21th)	11	06	3rd	01 (Promised)	22	10th	01 (Responded)	17	17th	01 (Apology)	13	24th	00	13
			4th	01	21	11th	01(Apology)	16	18th	00	13	25th	00	13
Week 4 (22nd-28th	14	05	5th	01 (Promised)	20	12th	01 (Promised)	15	19th	00	13	26th	00	13
			6th	0	20	13th	00	15	20th	00	13	27th	01	12
Total	50	26	7th	0	20	14th	00	15	21st	00	13	28th	01	11
				05/26	21/26		06/21	15/21		02/15	13/15		02/13	11/13

EMAIL PLATFORM (RECRUITMENT/INTERACTION PROCESS) 31stAUGUST-30th SEPTEMBER 2016

- **FIRST REQUEST SENT TO 25 PARTICIPANTS ON THE 31/08/2016.**

Greetings, I request your participation in this survey, as a way of test running the questionnaire. Please kindly answer these questions and help me with feedbacks that would help improve the survey. Your feedback will help the researcher note areas with flaws, which need improvements.

'The first phase of the study engages the use of two different surveys in data collection. The first survey deals with problem deliberation and collective re-visioning of Abuja city vision. At this stage, all inputs will be put together by me and emailed as feedback to you. The second survey will be developed based on information obtained from the feedback. This time, the survey engages the e-backcasting process. Demographic information asked is to validate the potential of the approach in enhancing inclusive participation.

Your participation is highly valued for a clearer direction for my research and dissertation. Attached are the questions. Please, kindly fill and return to me within five days to enable me time to collate and give you feedback for the second set of the survey.
Thank you as I wait in anticipation of your response.
Ache Stella Achuenu (PhD candidate)
School of Architecture and Planning,
Faculty of Engineering and the Built Environment,
University of the Witwatersrand

- **FIRST RESPONSE OBTAINED**

Emails were sent out to 26 proposed PhD colleagues across Nigeria, Malaysia, South Africa, UK, USA all drawn from within the researchers link. Six persons responded out of the 26 emails sent out

- **FIRST REMINDERS TO 20 PARTICIPANTS ON THE 9/9/2016**

  4 responses, 2 participants promised to meet up, 16 did not respond

Dear Colleagues and Friends
I appreciate the fact that you all have very tight and busy schedules. I appreciate it if you will kindly make out time to go through and fill the attached survey questions as best as you can. Attached is a reviewed copy of the first survey, all observations and inputs have been effected. Please ignore if you have not responded to the first survey earlier sent out, but if you have, please kindly address those affected areas you left out. Your comments and inputs are highly valued.
Thank you and I await your prompt response

RESPONSES TO THE FIRST REMINDER:

- Hi Stella, I missed applied response to your questionnaire which would have been done on a different request.
  Disregard the one I sent I will make time and start filling on Monday. Sorry about the mix up.
- Dear Madam
  Find attached my response on your survey. All the best
- Okay. Madam. I have started but not yet finished. Will try to finish and get back to you.
- Stella,
  I am through with the assignment ooo
- FGTG ma,
  Please find attached. I hope it is sufficient.
- Dear Stella,
  Find response attached
- Dear Stella,
- Please find attached my comments on the survey. Regards and all the best.

SECOND REMINDER SENT TO 16 PARTICIPANTS ON 20/09/2016

Dear colleagues and friends

This serves as a reminder to the pilot survey. Please kindly find time to fill the survey within the nearest possible time. Thank you

RESPONSE TO THE SECOND REMINDER

- Hi Stella,

I will do it tomorrow. I just came back after about 2 months away. God willing I should return it tomorrow. Cheers,

- Hi Stella

Ok please. I will just try and do that very soon. Best wishes

- Hi Stella

Oh did I send the work to you? I could not remember. Some of the questions could not be answered by me, but all the same I hope it helped. Regards

THIRD REMINDER SENT TO 14 PARTICIPANTS ON THE 23/09/2016

Dear colleagues and friends

This serves as a reminder to the pilot survey. Please kindly find time to fill the survey as the time allotted for testing of the instrument is running out. Kind regards

APPRECIATION MESSAGE SENT TO EACH PARTICIPANT WHO SENT IN THEIR RESPONSE

Dear Colleagues and friends

Thank you for taking out time off your tight schedules to pilot the survey. All comments noted. This section is to address the visioning and current state of the city. Your participation will guide and give me directions as to what my expectations should be as I embark on data collection while on the field. Your response rate and efforts thus far are quite encouraging and well appreciated.

Please note, that this is just the first section of the survey, the second section that will engage the e-backcasting approach will be sent shortly after collation as a way of feedback. This feedback will guide the filling of the second survey. Please note that the next review has been simplified and made a lot easier and I would be using the email created for the purpose of this study to communicate with you just in case. All other correspondences will be channeled through same.

Kind regard

INTERACTION BETWEEN RESEARCHER AND PARTICIPANT INVITING PARTICIPANTS ON THE NEXT LINE OF ACTIVITY

Dear participant

Your input was very useful. All corrections and observations have been effected.

I have forwarded the part two which is the second section of the survey. Please kindly go through and make your observation and comment. Note with regard to your earlier observation my school ethics warns against using leading question in administering open ended questions.

This weekend would be fine, because I need to use the feedback to review my instrument for data collection. Thank you and I await your response.

PARTICIPANT RESPONSE TO RESEARCHERS MESSAGE ABOVE:

Hi, Attached are my observations and hope it will be helpful.

Table C2: Facebook (Second Iteration)

5 schedules (sch.)/ Activities (same as those of the blog and WhatsApp):		Dates	Daily	Active participation				Passive participation	Recruitment				Exits			Total number of participants for each Sch.(total recruitment –total exist)
				Response	Like	Views	daily active participants	Silent members (cumulative recruitment-daily exit-daily active participant e.g. 08-00-03=05	Researcher	Participant	daily recruitment	cumulative recruitment	Exit	Violation/ Removal	Total exit	
Wk.1	Present state of Abuja;- 1) Group creation 2) Introduced myself 3) Briefs on the essence of why Abuja 4) Rules guiding participation and how to get involved 5)Background posted on why we need to shout about sustainable city development Part 1, 2 and 3	2nd Nov-8th Nov 2016	2	00	01	02	03	05	08	00	08	08	00	00	00	
			3	04	00	00	04	07	02	01	03	11	00	00	00	
			4	02	00	01	03	12	04	00	04	15	00	00	00	
			5	01	00	01	02	13	01	00	01	16	00	01	01	
			6	03	00	00	03	15	02	00	02	18	00	00	00	
			7	01	01	01	03	16	01	00	01	19	00	00	00	
			8	00	00	00	00	19	00	01	01	20	00	01	01	
		Total		10	02	05	18		18	02	20	20	00	02	02/20	20-02=18
Wk. 2	Present state of Abuja continued 1) Achieving sustainable development through good city administrative practices 2) Enhancement of participatory governance and decision-making 3)Urban Form and quality of built environment 4) Environmentalconservation 5)Socio-economic wellbeing of Abuja residents	9th Nov-16th Nov 2016	9	01	01	05	07	24-0-7=17	05	01	06	18+06=24	00	00	00	
			10	01	00	02	03	25-2-3=20	00	01	01	25	02	00	02	
			11	05	01	01	07	29-1-7=21	03	01	04	29	00	01	01	
			12	03	00	03	06	32-2-6=24	02	01	03	32	01	01	02	
			13	02	01	02	05	26	00	01	01	33	01	01	02	
			14	01	01	02	04	32	04	01	05	38	01	01	02	
			15	01	00	00	01	39	01	01	02	40	00	00	00	
			16	01	00	01	02	48	00	01	01	41	00	00	00	
		Total		15	04	15	35		15	08	23	41	05	04	09/41	41-09=32
Wk. 3	a)Present state of Abuja contd 5) Lessons learned from sustainable cities like Curitiba,	17th Nov-24th Nov 2016	17	00	06	05	11	32-0-11=21	00	00	00	32+0=32	00	00	00	
			18	02	00	02	04	28	00	00	00	32	00	00	00	
			19	00	00	01	01	32	02	00	02	34	00	01	01	
			20	00	01	01	02	35	00	03	03	37	00	00	00	

	6) Posted first assessment questions (comprising ten questions)		21	00	00	01	01	38	02	01	03	40	00	01	01	
			22	00	00	02	02	39	01	00	01	41	00	00	00	
			23	02	00	01	03	40	00	02	02	43	00	00	00	
			24	04	01	02	07	36	00	00	00	43	00	00	00	
		Total		08	08	15	31		10	06	11	43	00	02	02/43	43-02=41
5 schedules (sch.)/ Activities (same as those of the blog and WhatsApp):		**Dates**	**Daily**	**Active participation**				**Passive participation**	**Recruitment**				**Exits**			**Total number of participants for each Sch.(total recruitment – total exit)**
				Response	**Like**	**Views**	**daily active participants**	**Silent members (cumulative recruitment- daily exit-daily active participant e.g. 08-00-03=05**	**Researcher**	**Participant**	**daily recruitment**	**cumulative recruitment**	**Exit**	**Violation/ Removal**	**Total exit**	
Wk. 4	A) Re-visioning/backcasting:- 7) Creating a sustainable communal and inclusive vision for Abuja: 8) Could long-term city visioning and strategic planning tools like backcasting approach reinvigorate sustainable city planning and development for Abuja city? (a) Came up with different vision. Created four scenarios using the first four most preferred visions. (b) Ranked and selected the most wanted vision (c) Came up with a key timeline and five mid-term lines	25th Nov -2nd Dec 2016	25	02	02	04	08	41-0-08=33	00	00	00	41+0 =41	00	00	00	
			26	02	01	03	06	33	00	00	00	41	02	00	02	
			27	01	00	02	03	38	01	00	01	42	01	00	01	
			28	01	00	01	02	41	01	00	01	43	00	00	00	
			29	00	01	00	01	42	00	00	00	43	00	00	00	
			30	00	01	00	01	42	00	00	00	43	00	00	00	
			1	01	01	01	03	40	00	00	00	43	00	00	00	
			2	01	00	04	05	37	01	00	01	44	01	01	02	
		Total		06	06	15	29		03	00	03	44	04	01	05/44	44-4= 39
Wk. 5	B) Re-visioning/backcasting (continued);- 9) Practical application of backcasting approach and on how it can be applied to the Abuja city case (d) Applied backcasting and several strategies in achieving the most wanted vision	3rd Nov – 10th Dec 2016	3	01	05	01	07	40-9-7=24	00	01	01	39+01=40	09	00	09	
			4	01	03	02	06	44-0-6=38	00	01	01	41	00	00	00	
			5	01	01	01	03	39	00	02	02	43	01	00	01	
			6	00	01	01	02	43	00	02	02	45	00	00	00	
			7	01	01	00	02	43	00	01	01	46	01	00	01	
			8	00	01	00	01	44	00	00	00	46	01	00	01	
			9	00	01	01	02	44	00	00	00	46	00	00	00	
			10	04	01	06	11	37	02	01	03	49	01	00	01	

	(e) Came up with key stakeholder 10) Posted the second assessment questions (comprising 16 questions)																
	Total			08	14	12	33		02	08	10	46	13	00	13/50	46-13=33	

Table C3: Word press blog (Third iteration)

Blog schedules, recruitment and extent of participation for the blog was the list performed platform for the study

Schedules(Sch.)/Dates	Contacts made	Consents/response received
1st-30th January 2017	10	03
4th-26th February 2017	12	04
1st -28th March	7	01
3rd to 30th April	6	01
Total participants'	30	09

Table C4: WhatsApp (Fourth iteration)

Schedule(sch)/Activities:		Dates	Daily	Active Respondent (cumulative participation)	Passive respondent (cumulative recruitment-exit-active respondent) e.g33-0-12=21	Recruitment				Exit			Violation	Total number of participants for each sch. (total recruitment –
						Researcher	Participants	recruitment	Cumulative daily recruitment (previous day recruitment + next day recruitment) e.g. 33+14=47	Exit	Removals	Total		
Wk. 1	Present state of Abuja;- 1.Group creation 2.Introduced myself 3.Brief on the essence of the platform 4.Rules guiding participation and how to get involved 5.Why we need sustainable city	22nd February - 3rd March	22	12	21	33	00	33	33	00	00	00	00	
			23	14	33	00	14	14	47	00	00	00	00	
			24	08	54	14	03	17	64	00	00	00	00	
			25	06	87	26	04	30	94	01	00	01	00	
			26	11	84	01	00	01	95	00	00	00	00	
			27	08	90	03	00	03	98	00	00	00	01(apology	
			28	08	103	10	03	13	111	03	00	03	00	
			1	07	102	00	00	00	111	02	00	02	00	
			2	05	113	07	00	07	118	00	00	00	00	
			3	12	111	05	00	05	123	00	00	00	00	
		Total		91/117	111	99	24	123	123	06	00	06/ 123	01	123-6 =117

	development part 1 and 2													
Wk. 2	Present state of Abuja continued;- 1.Why we need sustainable city development Part 3 2.Achieving sustainable development through good city administrative practices 3.Why Abuja 4.The need to enhance participation in governance and decision-making	4thMarch-13th March	4	13	135-0-13=122	17	01	18	117+18=135	00	00	00	00	
			5	10	148	08	15	23	158	00	00	00	00	
			6	15	140	00	00	00	158	02	01	03	00	
			7	07	149	00	00	00	158	02	00	02	00	
			8	06	152	00	00	00	158	00	00	00	00	
			9	06	152	00	00	00	158	00	00	00	00	
			10	00	158	00	00	00	158	00	00	00	01(apology)	
			11	07	158	07	00	07	165	00	00	00	00	
			12	04	164	03	00	03	168	00	00	00	00	
			13	00	172	04	00	04	172	00	00	00	00	
		Total		68/167	172	39	16	55	172	04	01	05/167	01	172-5=167
Wk. 3	Present state of Abuja continued;- 1.Urban form and quality of built environment 2.Environment and environmental conservation 3.Lessons learned from world examples of sustainable cities like Curitiba 4.First assessment	14th March - 23rd March	14	01	166	00	00	00	167+0=167	00	00	00	00	
			15	02	165	00	00	00	167	00	00	00	00	
			16	15	154	02	00	02	169	00	01	01	00	
			17	14	156	00	03	03	172	02	00	02	00	
			18	20	154	02	01	03	175	01	00	01	00	
			19	09	167	01	00	01	176	01	00	01	00	
			20	02	173	00	02	02	178	00	03	03	00	
			21	04	173	00	00	00	178	01	00	01	00	
			22	16	164	02	00	02	180	00	00	00	01	
			23	11	172	03	00	03	183	00	00	00	01	
		Total		94/174	172	10	06	16	183	05	04	09/174	02	183-9=174

	questions (10 questions)													
Wk. 4	Present state of Abuja continued;- 1.Socio-economic wellbeing of Abuja residents 2.Lessons Learned from world examples of sustainable cities like Curitiba	24th March - 2nd April	24	02	172	00	00	00	174+0=174	00	00	00	00	
			25	08	166	00	00	00	174	02	00	02	00	
			26	05	169	01	00	01	175	01	00	01	00	
			27	00	174	00	00	00	175	00	00	00	00	
			28	12	162	00	00	00	175	00	00	00	00	
			29	17	157	00	00	00	175	00	00	00	00	
			30	09	165	00	00	00	175	00	00	00	00	
			31	11	163	00	00	00	175	01	01	02	01(apology)	
			1	04	170	00	00	00	175	00	00	00	00	
			2	00	174	00	00	00	175	00	00	00	00	
		Total		68/171	174	01	00	01	176	04	01	05	01	176-5 =171
Wk. 5	Re-visioning:- 1. Creating an inclusive vision for Abuja. 2. Could long-term city visioning and strategic planning tools like backcasting approach reinvigorate sustainable city planning and development for Abuja city? 3.Created varying visions	3rd April – 12th April	3	02	169	00	00	00	171-0=171	00	00	00	00	
			4	06	165	00	00	00	171	00	00	00	00	
			5	03	172	00	01	01	175	00	00	00	00	
			6	00	175	00	00	00	175	00	00	00	00	
			7	01	172	00	00	00	175	00	01	01	01	
			8	00	177	01`	02	03	178	01	00	01	00	
			9	00	180	00	02	02	180	00	00	00	00	
			10	04	179	00	03	03	183	00	00	00	00	
			11	00	185	00	02	02	185	00	00	00	00	
			12	17	168	00	00	00	185	00	01	01	01	
		Total		33/185	168	01	10	11	185	01	02	03	02	185-3=182
Wk. 6	Re-visioning contd. 1. Brief introduction on practical application of backcasting on the Abuja city	13th April– 22nd April	13	09	174	01	00	01	182+01=183	00	00	00	00	
			14	00	184	00	01	01	184	00	00	00	00	
			15	04	181	00	01	01	185	00	00	00	00	
			16	02	183	00	00	00	185	00	00	00	00	
			17	01	184	00	00	00	185	00	00	00	00	
			18	26	159	00	00	00	185	00	00	00	00	
			19	06	179	00	00	00	185	00	00	00	00	
			20	06	179	00	00	00	185	00	00	00	00	
			21	01	184	00	00	00	185	00	00	00	00	

	2. The choice of four most preferred visions for Abuja 3. Rank and choose the most preferred vision 4.Second assessment questions (16 questions)		22	00	185	00	00	00	185	00	00	00	00	
		Total		55/182	185	01	02	03	185	00	00	00	00	185-3=182
Wk. 7	Re-visioning contd. 1. Selection of the key timeline and five mid-timelines 2.Discuss key challenges that pose a limit to achieving the vision 3.Apply backcasting strategy to achieve the vision	23rd April- 1st May	23	06	176	00	00	00	182+00=182	00	00		00	
			24	00	182	00	00	00	182	00	00		00	
			25	00	182	00	00	00	182	00	00		00	
			26	00	182	00	00	00	182	00	00		00	
			27	00	182	00	00	00	182	00	00		00	
			28	05	177	00	00	00	182	00	06		00	
			29	02	180	00	00	00	182	00	00		00	
			30	00	182	00	00	00	182	00	00		00	
			31	00	182	00	00	00	182	00	00		00	
			1	02	180	00	00	00	182	00	00		00	
		Total		15/176	180	00	00	00	182	00	06		00	182-6=176
Wk. 8	Re-visioning contd. 1. Practical application of e-backcasting on target vision 2. Key stakeholder responsible for achieve vision 3. Administer 3rd assessment	2nd May- 13th May	2	00	176	00	00	00	176+00=176	00	00		00	
			3	00	172	00	00	00	176	00	04		00	
			4	00	176	00	00	00	176	00	00		00	
			5	02	174	00	00	00	176	00	00		00	
			6	01	175	00	00	00	176	00	00		00	
			7	06	169	00	00	00	176	00	00		00	
			8	00	171	00	00	00	176	00	05		00	
			9	00	176	00	00	00	176	00	00		00	
			10	00	171	00	00	00	176	00	05		00	
			11	01	174	00	00	00	176	00	00		00	
			12	06	169	00	00	00	176	00	01		00	
			13	08	168	00	00	00	176	00	00		00	

	questions (five questions)	Total		24/161	168	00	00	00	176	00	15		00	176-5=161

Appendix D: Application of e-Backcasting Procedures and Outcomes of each Step

Step 1: Preliminary and scoping stage

Table D1: Summary presentations of findings at the preliminary-scoping stage of the e-backcasting prototyping process

Activity/Schedule (Sch.)	Scoping questions	Platforms				Total	Findings
		WhatsApp	Facebook	Email	Blog		
The distribution of participants knowledge about the Abuja vision and plans prior to participating in the exercise	Yes, a lot	22	11	03	03	39	From the study, 39 participants had little knowledge about Abuja city vision while 43 knew so much prior to their participation. One thing that was most pronounced were issues relating to distortion in planning and implementation of the vision. Participants see class structure, indigeneity, population explosion, neglect of the poor in spite of the standard of development as the current challenges while interrogating the city's centrality and unity as propagated by the visionary.
	Quiet a little	31	05	05	02	43	
	No, not at all	05	00	00	00	05	
	Just a little through this platform	04	11	01	01	17	
	A lot through this platform	09	07	002	01	19	
Total		71	32	11	07	123	
Total number of responses for each platform showing how desirable the current vision is amongst participants	Yes	30	11	02	03	50/142	50 participants were of the opinion that the Abuja vision is desirable as the government is making efforts at providing basic infrastructural needs and guaranteeing peace and security of citizens. However, 102 participants disagree on the basis that most of the city planning strategies are not effective.
	No	66	24	09	03	102/142	
Distribution of participants with or without knowledge on sustainable development prior to participation in this exercise	A little.	28	10	03	00	41	The implication of low familiarity with Abuja affected participants' level of confidence and inputs in the various exercises carried out as quoted in the excerpts below: **Respondent Email:** I reside outside the country; have not been to Nigeria in the last 12 years, even though I had been to Abuja twice. Currently I may have lost touch with the happening in that part of the world. I may not give correct information that will help this work but am open to learn from others.
	So much	27	10	02	00	34	
	Never, none at all	00	00	00	00	00	
	Just knowing through this platform	09	06	01	00	24	
	A lot through this approach.	10	09	01	00	20	
Total		74	35	07	00	119	

							Respondent WhatsApp: Although I reside in Nigeria, I have never visited Abuja before and am limited in my knowledge about the city. I won't be able to give meaningful input to the study. Am sorry about that
Distribution of participants that have either visited or lived in Abuja and those that have not prior to their participation in this exercise	Yes	25	13	03	01	42	From the results of the study, 41 participants had little knowledge about sustainable city development concept while 34 had knowledge prior to their participation. The distribution of participants that have visited or reside in Abuja prior to their participation in this exercise. From the study, 42 participants visited once while 73 had never visited Abuja before.
	No	48	18	05	02	73	
Total	73	31	08	03	115		

According tosummary of respondents on Table D1, Abuja city could not realise its vision because of the lack of continuity and the political will on the part of the government to implement policies to the latter due to personal gains and selfishness, as every new government comes with new strategies and overburdened bureaucracy often derailing good programmes. Most projects are only seen on paper and media publication but not implemented on the ground. There is the need therefore to ensure qualified persons are in the right offices and to hold such people accountable for failures in their respective sectors. Without this, sustainable development will continue to elude the city. Participants attribute the city's current state to varying issues such as lack of planning/adherence to laid out plans, incompetent hands, poor maintenance culture, and exclusion of indigenous ideas and poor interpretation of the original purpose of those who developed the programme. In general, the standard of the socio-economic well-being of the populace is low, environmental and resource conservation is not adequate for the masses. In spite of these lapses, a few people were of the opinion that the city is well planned with standard facilities as the road networks are improving and the city has begun to have the phase of a modern city with high growth rate. The selected excerpts below give varying and general understanding of the extent to which participants know about the FCT;

- The major problem has to do with inconsistencies in the implementation of policies guiding the city's development
- The master plan for Abuja has been through multiple changes that have affected the functionality of the plan.
- The projected population has far exceeded the original plan resulting in overstretched infrastructure, poor waste management among other vices.
- Development in the city is of high world standard, with adequate development control being put in place.
- At the onset of the creation of Abuja municipality, it was canvassed that it is to position all the states for fair representation centrally. But the present city is now being claimed by the original settlers; it's not at the centre per se as we were told.
- When the Federal Capital moved to Abuja, it assumed a class structure favourable to the high class of the Nigerian state.

City planners and administrators were blamed for easily bowing to political pressures thus derailing from the focus of the vision for the city. The problem is that currently, the original inhabitants are now claiming ownership of Abuja, thus deterring investors from assisting in realising the vision for the town. The apparent disparity between the high-class area and the poor/average

residents contributes in distorting the supposed unity of Nigerians as envisaged from the onset. In the opinion of respondents, a common desirable future for the FCT can be achieved by prioritising the need of the citizens vis-à-vis the challenges to meeting the city's vision(s) through proper implementation and eliminating religious, tribal, political and sociocultural dichotomies. Government policies must be strategic and self-interests must be curtailed. Abuja should be seen as a centre of unity as initially planned since economic, environmental, social, cultural, political impact on the city affects all citizens.

Findings also show that before this exercise most participants in some cases (Facebook with 23 responses) had little experience with formal or informal planning participatory activity, whereas others (WhatsApp with 53 responses and email platforms had 9 responses) had more participants who were much more experienced (see Table D2). As a whole, a total of 110 active responses out of 239 participants indicated that they had been involved in one form of formal or informal urban planning activity before now while 51 participants had not. On the other hand, before this exercise, only 26 responses indicated they had the privilege of knowing what backcasting approach was while well over 94 participants had never heard the word nor even knew what that meant. Despite the variability in experience and background, the email, Facebook, and WhatsApp platforms had more successful process outcomes unlike those of the blog, which experienced poor participation.

Table D2: Participants' category during exercise

Category		**WhatsApp**		**Facebook**		**Email**		**Blog**		**Total response**	
		Yes	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
Have you any formal or informal urban planning experience		83	26	18	23	09	02	00	00	110	51
Have you heard of backcasting		15	62	08	22	03	10	00	00	26	94
Academic skill	Science	98		28		11		00		137	
	Art	58		25		01		00		84	
	Trade	10		07		01		00		18	
Total participants										239	

Step 2: Strategic problem orientation of current state of Abuja city vision development using SWOTs analysis matrix

The SWOT internal and external factors, strategies considered were classified into four categories which are further classified as harmful or helpful. They are;

- Strengths–Weakness (SW),
- Opportunities –threats (OT),
- Strength–opportunities (SO), and
- Weaknesses– threats (WT).

The code which is assigned to each strategy in the SWOT matrix shows the interaction between that strategy and related strategic limits. After several weeks of brainstorming, within different timelines assigned for each online platform, the SWOT analysis matrix that was developed is presented on the table below. The actual SWOT analyses produced were used to lay the foundation for developing e-backcasting as a strategic planning tool (see Section 3.4 in Chapter 3). This SWOT section sought to answer the following questions:

- How many items were listed as strengths, weaknesses, opportunities, and threats?
- How were they prioritised?
- How were they used subsequently?

Tables D3, D4, D5, D6, D7 and D8 presents the SWOT matrix gives a breakdown of the number of elements identified as strengths, weaknesses, opportunities and threats. In general, quite long lists were produced and fewer than five key elements on the status quo for Abuja across the four platforms (see Table D2). Figures D1, D2, D3, D4 and D5 show the data from the various items in hierarchical form. The SWOT contained a total list of over 406 factors with an average of 5 elements per category. Each SWOT had over 80 factors identified. Also worthy of note perhaps is the range, from 35 total factors to 50. The high numbers reflect the fact that large groups of participants recorded in the WhatsApp, Facebook contributed to the list, either jointly in the forums or providing separate analyses on Facebook messenger. The number of factors per SWOT category, on the average, showed that participants identified more weaknesses than strengths and also perceived slightly more threats than opportunities. It is important to note that to allocate relative importance to individual factors; scores were used in relation to the number of respondents, especially to give weight to each SWOT output. Carrying out a verbal analysis of the SWOT outputs and the main finding at this point is cumbersome as the majority of items listed are all exceptionally long in expression, often three or four-sentences and more in some cases. For example, the WhatsApp forum under the different categories had 622 items in all (105 net of repetition across platforms). They listed 130 weaknesses (net) and 141 threats (net), using an average 50 words to describe each factor. For the Facebook and email platforms here and elsewhere, the elements are very general points e.g. weaknesses such as ‘corruption', lack of adequate implementation, 'not innovative enough,' 'poor quality' and so on. Some ideas fall into more than one category, and may be mentioned in more than one section in the discussion. Also, very few factors were made more explicit by the use of numerical data (score) and there were significant positive and negative score getters in this category. Related to this ambiguity are three other main findings:

- In the course of the activities, the researcher rarely challenged or sought clarification of the points raised. The points were merely recorded and listed under each category headings. No independent verification was carried out on any SWOT issue. Where the same point was recorded under two or more categories as both strength and a weakness, no reconciliation was made to explain the apparent contradiction.
- The distinction between internal (strengths and weaknesses) and external (threats and opportunities) was not always preserved.
- The many general points remained general, i.e. they were assumed to apply equally to all issues. No process of increasing the precision of the SWOTs was undertaken.

Table D3: Summary on SWOTs matrix on the status-quo state of Abuja city

Key elements on the status-quo of Abuja dealt with across four platforms	**Factors**	**Matrix**					**Strategies**	
		Helpful	**Total score**	**Harmful**	**Total scores**	**Total scores**	**SO**	**WT**
The participatory governance and decision-making process	Internal	Strength (S)	13	Weakness(W)	22	35(SW)	04	07
	External	Opportunities(O)	15	Threats(T)	25	40(OT)		
Urban form and quality of built-environment	Internal	Strength(S)	11	Weakness(W)	26	37(SW)	05	08
	External	Opportunities(O)	16	Threats(T)	27	43(OT)		
Infrastructure and services	Internal	Strength(S)	17	Weakness(W)	23	40(SW)	09	05
	External	Opportunities(O)	15	Threats(T)	27	42(OT)		
Socio-economic and well-being	Internal	Strength(S)	14	Weakness(W)	23	37(SW)	10	06
	External	Opportunities(O)	19	Threats(T)	27	46(OT)		
Environmental` quality	Internal	Strength(S)	13	Weakness(W)	23	36(SW)	05	04
	External	Opportunities(O)	15	Threats(T)	35	50(OT)		
Total/Average			148/5=30		258/5=52	406/5=81.2	33	30

Table D4: SWOT matrix on enhanced participatory governance and decision-making

	Helpful	Score	Harmful	Score
Internal	**Strength** S1-Consolidation of support roles between government and the citizens at all levels.	13	**Weakness** W1-Gaps with policies	12
			W2-Anti-people centred city framework	12
			W3-Corruption	08
			W4-Lack of political will	06
			W5-Negative political influence on planning structure	04
	S2-Combining resident's responsibilities in supporting city governance	6	W6-Distortion to the participatory dimension to the master plan	03
			W7-Faulty political structure	03
			W8-The Inefficient application of law enforcement approach in decision-making.	03
	S3-Better relationships can be fostered among residents	5	W9-Poverty mentality leads to lack of enthusiasm in participation.	02
			W10-Inadequate plans and knowledge	02
	Total	24	Total	55
External	**Opportunities** O1-Continuous human capacity development.	20	**Threats** T1-Neglect of citizen participation	20
			T2-Implementation problem,	14
	O2-Adoption of new technology	09	T3-Inadequate funding,	11
	O3-Building good relationships between government and citizens	06	T4-Abandonment of developmental strides of past governments	09
			T5-Lack of continuous reviews in order to perfect on follow up strategy	06
	Total	35	Total	60

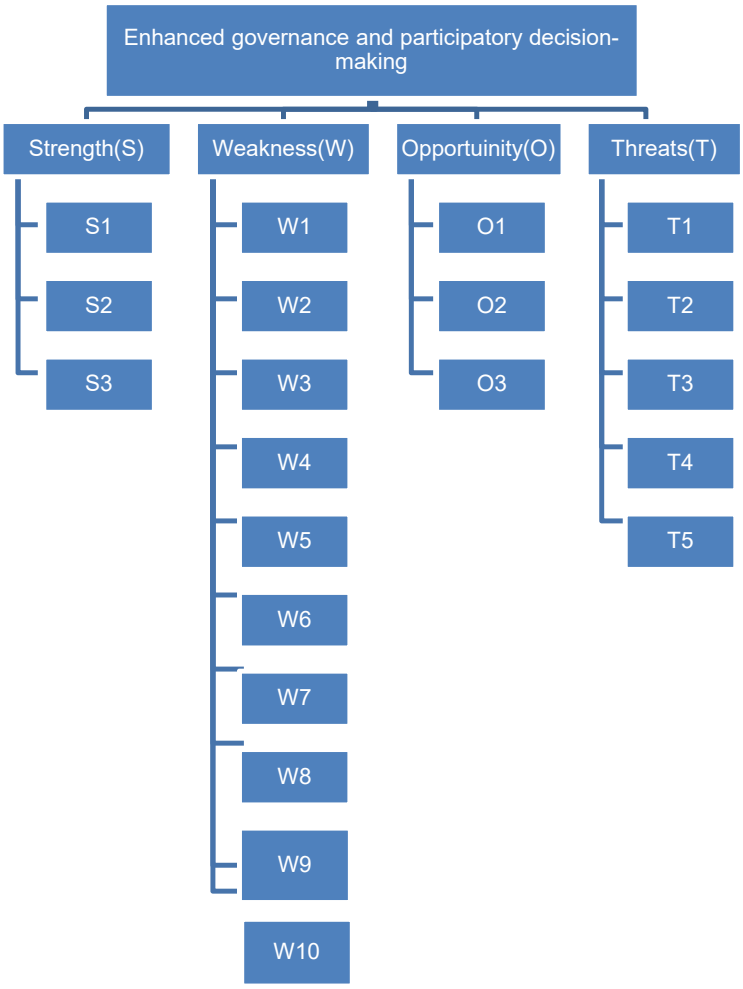


Figure D1. Ranking of enhanced governance and participatory decision-making

Table D5: SWOT matrix on urban form and quality of built-environment

	Helpful	Score	Harmful	Score
Internal	**Strength** S1-Intensification of urban form	09	**Weakness** W1-Loss of land at the expense of buildings and development	08
	S2-Enhanced urban life due to the vitality of city centre and its neighbourhoods	08	W2-Traffic congestion between FCC and satellite towns during rush hour time	07
	S3-Government layout and estates are better designed compared to areas managed by community chiefs	O6	W3-Improper management of refuse dumps	05
			W4-Reverse sensitivity issues due to permissive approach	04
	S4-Upgrade of pedestrian environment throughout the city centre	04	W5-Insufficient identification and protection of open space throughout the FCT	04
	S5-Protected open spaces within city from urban sprawl	04	W6-Poor provision of playgrounds and sports fields	04
	S6-Well-designed spiral transport routes from the city centre to suburbs	04	W7-Irregularity in the completion and management plans for all reserves and parks	03
	S7-Major access roads towards the city center are excellent, thus an advantage of a short commute time of 15 to 35mins from the satellite town into the city centre	03	W8-Inadequate open space particularly within communities of the five area councils except for AMAC	03
			W9-Limited greenfield sites between FCC and suburbs	03
			W10-The Pedestrian environment in many parts of the Central Area is unattractive	03
			W11-Some central area open space has poor amenity due to location and sunlight	03
			W12-High costs of maintaining existing open/public space	03
			W13-Inconsistent policy on provision of street trees, especially in the FCC/suburbs	03
			W14-Most communities lands within satellite towns sold by community chiefs have become slums	02
			W15-High concentration of population at the out sketch of FCT due to high cost of living within the FCC.	02
			W16-Epileptic electricity supply	02
			W17-High disparity between the living areas for the rich and poor.	02
			W18-Access road to most private estates and communities are untarred and in a deplorable state	02
			W19-Neighbourhoods within city centre have their source of water supply from water board while most communities in satellite town make use of self-sourced water through borehole and water	01
			W20-Ongoing loss of heritage/cultural value due to the displacement of original settlers	01
			W21-Poorly designed public/private interfaces on privately developed sites	02
			W22-High rate of residential development in areas termed as an illegal settlement around Gishiri Nicon junction in Matiama, Asokoro	01

	Helpful	Score	Harmful	Score
			extension- although not yet looked into by Government.	
	Total	38	Total	65
External	**Opportunities**		**Threats**	
	O1-New open space in satellite towns like Kubwa, Karo, Nyanya, and FCC areas	09	T1-Bad urbanisation policy	10
	O2-Introduce new instruments for achieving protection of open space	07	T2-Poor policy implementation	07
			T3-Poor planning management.	06
	O3-Use of Aids Policy(AP) as a tool in directing growth	06	T4-Development impacts on the vegetation within the suburbs and surrounding area.	06
	O4-Restoring streams and green corridors particularly those around Jabi, Kubwa and Kuje towns.	04	T5-Loss of natural ecosystems due to continuous construction	06
			T6-Loss of stream environments from excessive urbanization	06
	O5-Mkaing open space accessible to all residents and visitors	04	T8-Approach to vision was already contrary to the ideals of urban planning	04
			T9-Impacts of climate change including hot and dry weather conditions on the city	02
	O6-Land use activities in the city are strongly influenced by the type of economy and employment opportunities that exist.	4	T10-The conflicts arising from land-use activities become more visible.	02
	O7-The six area council now influences land uses activities by district plan zoning and investments	04	T11-Poor design in multi-unit developments	01
	O8-The city has a restrictive approach to the central area but retains a more permissive attitude to the rural and residential parts of the city.	02	T12-Loss of particular services that can't afford land values	01
	O9-Increased densities in some areas of the city through additional public and private investment in viable infrastructure	02	T13-Pressure on sensitive sites like vegetation/hills	01
	O10-Diversity of services provided due to specialization	01	IT14-Impacts of climate change/extreme weather events on the built form of the city	01
	O11-New protections for heritage in new parts of the city	01		
	O12-Change building form requirements in the suburban to direct growth	01		
	Total	41	Total	57

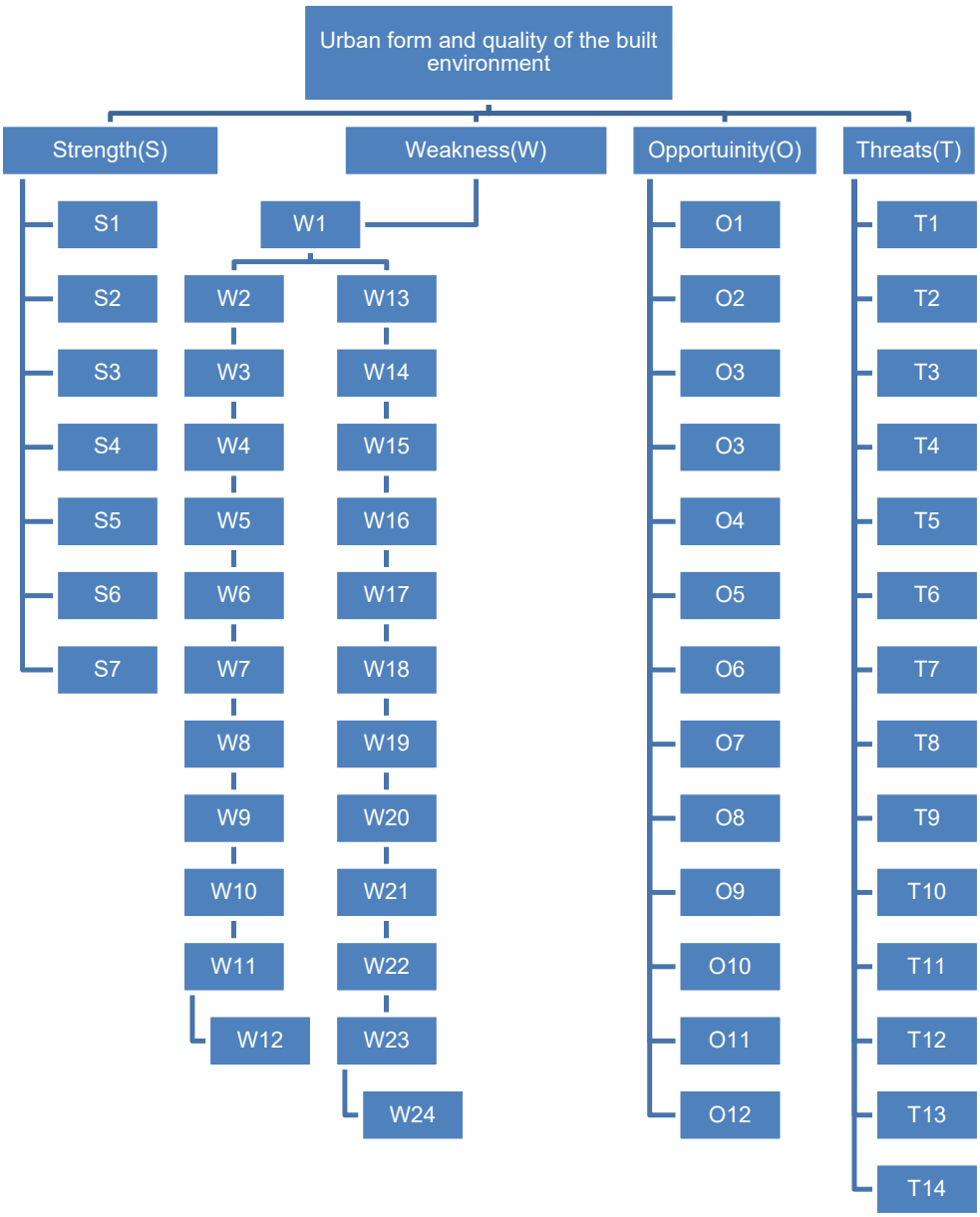


Figure D2. Ranking of urban form and quality of built-environment

Table D6: SWOT matrix on Infrastructure and services

	Helpful	Score	Harmful	Score
Internal	**Strength** S1-Infrastructure is not a significant constraint on growth for the city	14	**Weakness** W1-Poor foresight regarding an increase in the population leading to rapid growth in car ownership	15
	S2-Strong knowledge of the current state of infrastructure and the requirement to upgrade it	10	W2-Lack of a consistent and transparent structured regulatory and policy framework-e.g., PPP framework	15
	S3-Passion for technology (also from the top-down, e.g., Government is willing to make technological changes/upgrades)	08	W3-The country is overly bureaucratic and political, thus delaying absorption of funds and deterring investors.	10
			W4-Government is over capitalistic and not social oriented	05
	S4-Proliferating of both national and international funds target driven by strong demand for transportation, power, urban infrastructure and housing.	8	W5-Private investors are not censored as such services provided are beyond the residents.	05
			W6-Suffers impediments due to inefficiency in transport policy.	05
	S5-Abuja administrators are keen to facilitate private sector participation in infrastructure service provisions.	5	W7-Iinadequate electricity infrastructure to support workload	05
	S6-Presently, commercialising of private car as means of public transport made transport cost cheaper by balancing the challenge of demand and supply.	4	W8-Poor maintenance culture	05
			W7-Inability to generate enough power to support the people's needs	04
			W8-Lack of the step-down transformer led to rationing of power supply.	04
	S8-It is more comfortable to access the city centre from satellite area because the roads to the city are excellent.	4	W9-Another challenge is vandalism of gas pipelines/ power grid.	04
	S9-Water system has potentials for an upgrade	4		
	Total	57	Total	73
External	**Opportunities**	score	**Threats**	score
	O1-Place some of the costs of infrastructure upgrades onto developers through developer contributions	17	T1-Corruption	24
			T2-Significant costs to replace aging systems	13
	O2-Increased commercialising of private car to mitigate the current economic recession in the country.	15	T3-No visible link between long-term growth plans/asset management	08
			T4-Guiding legislation is in place, but consistent lack of implementation has been a problem.	07
	O3-Potentials for improvement in water supply, power generation, and other transport infrastructural services if there are continuity in that direction	06	T5-There needs for qualified persons in the right offices for accountability in their respective sectors.	07
			T6-Transportation system is solely vehicular, a disadvantage to commuters due to the constant increase in cost	06
	O4-Economic opportunity for locals as truck pushers and water vendors make a living from the sale of water	06	T7-The motor parks/garden are unplanned, disorganised, dirty/un-tarred as government entirely ignores the parks (for the poor/lower middle class).	06
	O5-Success stories of the provision of social infrastructures in Curitiba can be adapted	03	T8-Lapses in the approach to water provision within satellite towns/ new areas residence leading to water shortage	05
	Total	47	Total	77

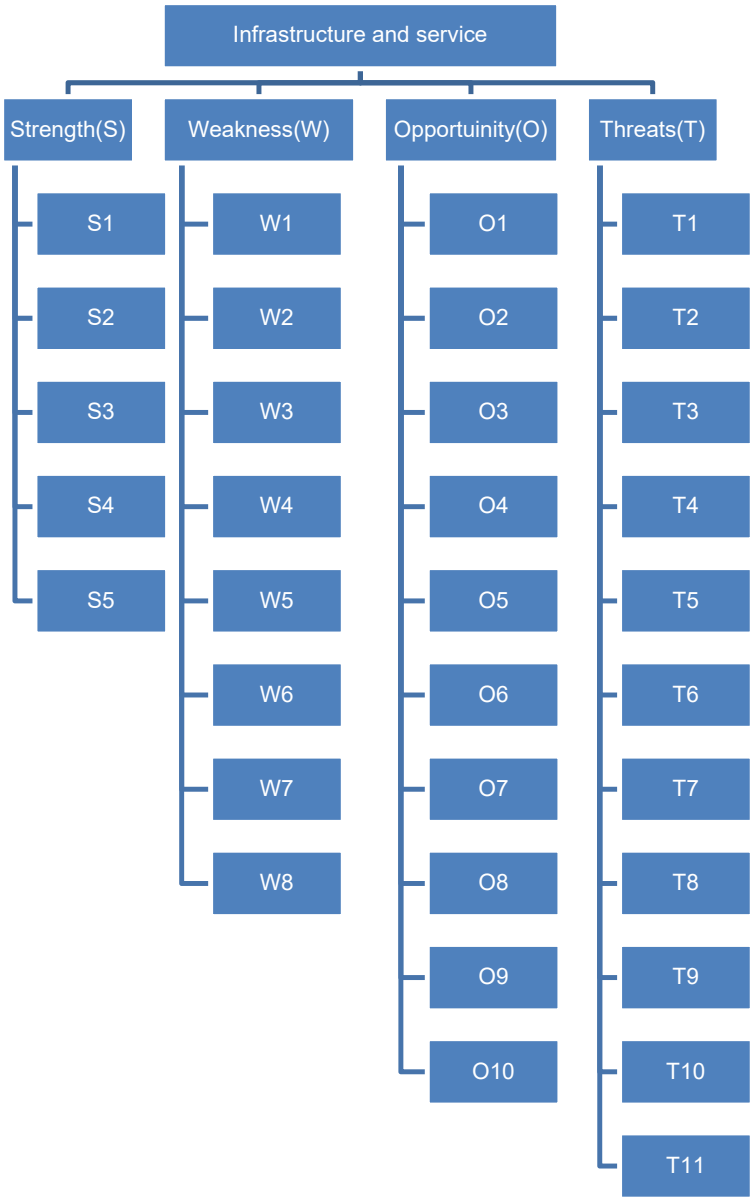


Figure D3. Ranking of infrastructure and service

Table D7: SWOT matrix on Socio-economic and well-being

	Helpful	Score	Harmful	Score
Internal	**Strength** S1-Private sector are currently addressing these gaps but at very high cost and may be supplemented by donors NGOs/CBOs but in a regulated manner	11	**Weakness** W1-Lack of adequate social plans on the part of the leadership	14
			W2-No adequate plan or place for the poor	07
			W3-Poor demographic information	
	S2-In education, they are both public and private school as such creating variety of choices depending on affordability.	09	W4-Poverty mentality led to overcrowding/poor planning	05
			W5-Integration policy of indigenes was not a holistic one leading to neglect of physical development.	05
			W6-Ineffectiveness on the part of law enforcement agencies with building and development control	05
	S3-Averagely the supply of electricity and energy in Abuja is relatively far better when compared with those of other cities.	04	W7-Social stratification	05
			W8-Inefficient and ineffectiveness of state-owned enterprises (government companies) thus constituting systematic drain.	04
			W9-Uunemployment	03
			W10-The policy of build and sale made land exorbitant	03
			W11-High cost of house rent despite vacant houses everywhere	02
	Total	24	Total	53
External	**Opportunities** O1-The consistent delay of government intervention in curbing slum development	08	**Threats** T1-Unforeseen challenge as a result of population increase	10
	O2-Citizens social responsibility towards maintenance	07	T2-Monetisation policy rendered many civil servants unable to own houses within the City Centre.	08
	O3-Introduction of a perfect transport system particularly the rail system	06	T3-The use of shoddy building materials led to consistent building collapse particularly in Gwarinpa, life camp, Lugbe axis/Lokogoma.	07
	O4-Investment in Mortgage House.	05	T4-Corruption/lack of political will	05
			T5-Lack of citizens participation	05
	O5-The only options left for civil servants is to buy a house from estate whenever government is not satisfying their obligations.	03	T6-Bad process of implementation	04
			T7-Exorbitant prices required to obtain the right of ownership of any land-encouraged slum development	04
			T8-The exorbitant price of buying or renting houses also led to making integrated settlements slums	04
			T9-Government adopted a foreign policy that could not meet the local citizens housing needs	04
			T10-Consistent enforced demolition	03
			T11-Selfishness/self-centeredness of individuals creates the gaps in implementation	02
			T`12-Lack of consistency in plans	01
	Total	29	Total	57

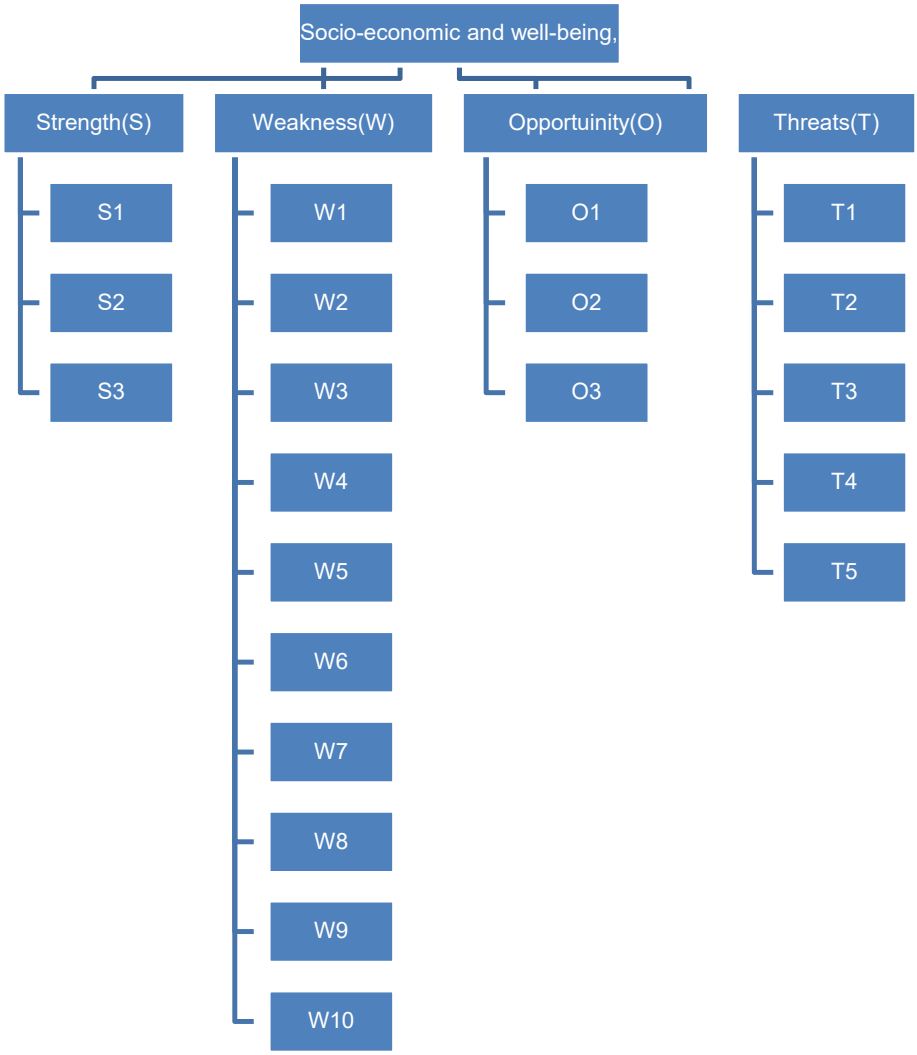


Figure D4. Ranking of socio-economic and well-being

Table D8: SWOT matrix on Environment quality

	Helpful	Score	Harmful	Score
Internal	**Strength** S1-Individuals interest in creating private parks for recreational activities and income generation	08	**Weakness** W1-Lack of enforcement of laws prohibiting indiscriminate refuse dumping,	08
			W2-The absence of affordable pickup service for trash and recyclables and a viable waste recycling management system contribute to the problem of illegal dumping	07
			W3-Corruption	06
	S2-Private parks are also creating jobs.	06	W4-Lack of refuse collectors at strategic points	05
	S3-Sseveral CBOs and NGOs are involved in utilising formal as well as non-formal methods in various societal and developmental activities	05	W5-Lack of awareness amongst residence	05
			W6-Lack of proper channels of refuse dumps sites.	05
			W7-Poor maintenance culture.	04
	S4-The youths are enthusiastic and productive human resources in the community for sound waste management through active community participation.	04	W8-The cost of fees for dumping at a proper waste disposal facility is often more than the fine for an illegal dumping offense, thereby discouraging people from complying with the law.	04
	S5-The high quantum of waste generated by the Abuja community can be converted to so many by-products example, e.g., electricity, manure	O4	W9-Government lack foresight on tourism attraction	03
			W10-Neighbourhood parks in various parts of the city remains in the state of disrepair as both commercial/private interests outweigh that of those residing in these neighbourhoods.	03
			W11-No proper organisation strategy by various associations/bodies in charge of parks due to either lack of policy implementation or failure of it	02
			W12-So many think it's not their responsibility to keep the city park and open spaces clean.	02
			W13-Cost and convenience often spur Illegal dumping, and many factors continue to encourage this practice.	02
	Total	28	Total	55
External	**Opportunities** O1-Promotion of cost-sharing activities and adopting appropriate mutually agreed strategies to monitor the environmental quality, so that community groups and other stakeholders can support and strengthen the programmes.	11	**Threats** T1-Poor environmental cleanliness	16
			T2-Scarification of the environment owing to infrastructural development results in flooding/increase in waterborne disease spread.	12
	O2-Concerted efforts at environmental reclamation activities	08		
	O3-Private sector participation in wastes management in areas of collection, disposal and wastes to wealth (conversion)	06	T3-The policy problem of government wanting to run the cities without the desired commitment.	10
	O4-Land to construct transfer stations to handle services/providers are readily available	05	T4-Pollution and its effect to health	08
			T5-Environmental degradation	07
	O5-Youths who are unemployed can contribute in establishing microenterprises and community-based organisations that cater for the environment thus serving as an alternative employment opportunity for youths involved in the programme.	04		
	Total	34	Total	53

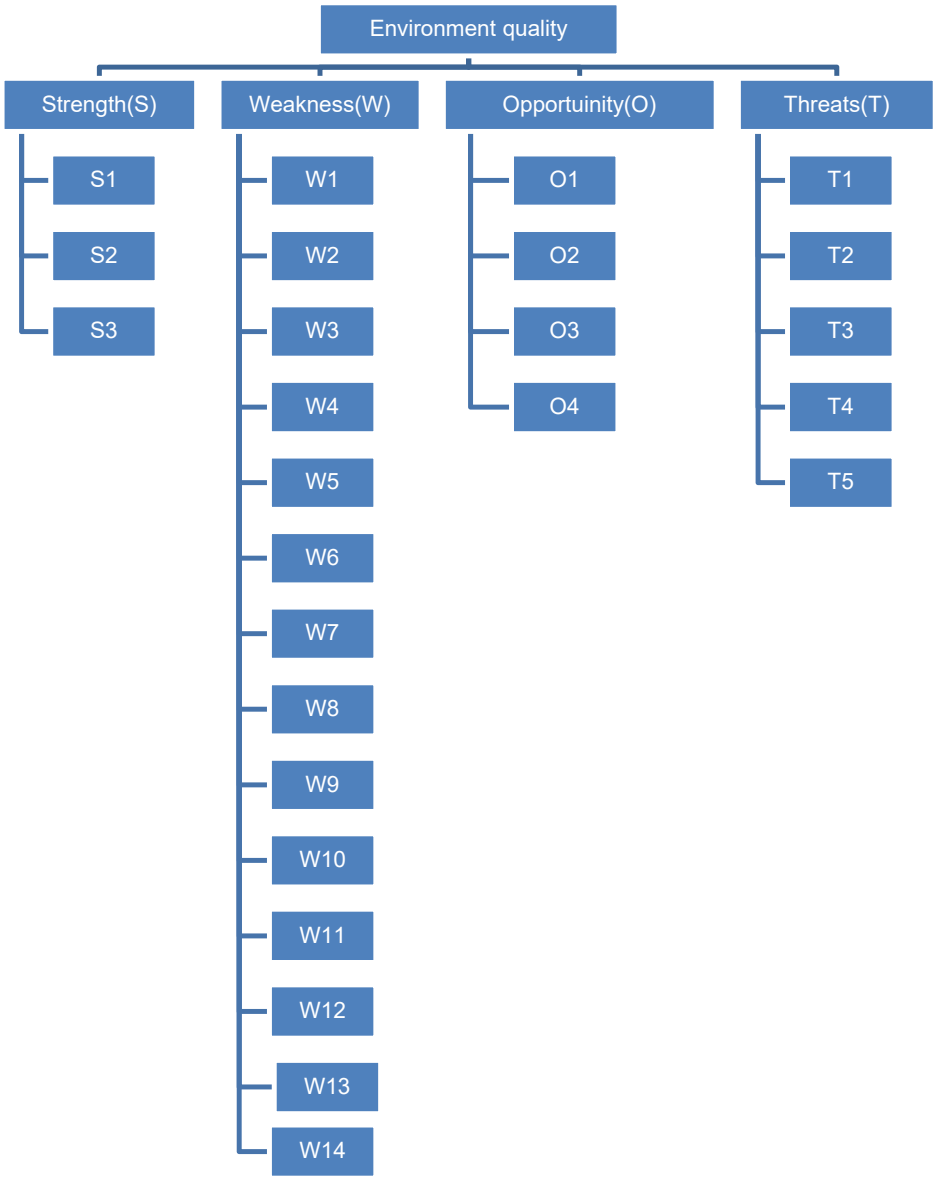


Figure D5. Ranking of environmental quality

Step 3: Developing future vision through exploratory scenario creation of the Abuja City Vision

The reasons for the choice of scenario analysis as one of the tools in data analysis for the study is that outside the planning phase, scenarios expose participants to the changing aspects of the city facilitates for the understanding to reach sustainable solutions to the challenges confronting the city. The fact that backcasting and scenario's planning do not give details of just one future but some desirable prospects of up to four different scenarios, also indicate that scenario planning is an excellent tool for analysis in backcasting. At the end of the scenario exercise, it was observed that there was some form of improvement in the communication level amongst participants as they began to develop a common language for dealing with the challenges and planned responses. That is because scenario-creation helped participants to break through communication barriers as they think through how alternative development pathways might influence the future outcome. The ability to illuminate issues and break impasses makes scenario analysis amongst participants instrumental in opening new horizons and enabling strategic thinking for decision-making. Scenario activities helped in diversifying participants' opinions and improving their level of critical thinking towards the change required. Hopefully, leadership initiatives in participants have been impacted in order to allow for better handling of complex situations as they arise in the future.

Content of scenario and convergence towards the desired future vision

Although as crucial as this scenario planning exercise is, it is space consuming to reproduce the storylines in detail here. Instead, details of the summaries of the scenarios and the final versions of the storylines and their main factors are presented from Tables 3 to 6. A total of 41 different scenarios were first collated and organised in scenarios' with their spatial extent. These 41 versions of visions reflect the diverse background and personal thought pattern of each participant on Abuja. For instance, out of these 41 scenarios, email and blog platforms had a total of seven future visions, each generated while WhatsApp and Facebook had 30 and eight respectively. These scenarios did not only contain views describing their main characteristics but elaborated with suggestions supporting more detailed scenes generated to depict different sustainable lifestyles that could be seen as each other's substitutes. In essence, participants were given a considerable degree of freedom to develop their scenarios, which in most cases, were interwoven and needed to be downscaled. Further breakdown revealed that WhatsApp with the most scenarios of 30 categories was first downscaled to 17, later to 12 and then to six scenario's through 1st, 2nd, 3rd and 4th ranking. Facebook had its initial eight scenarios downscaled to four and two and then one, through same ranking process which was also carried out for the e-mail platform. The scenarios process for the blog undertake through back-office work by the researcher due to inadequate response and participation. The final scenarios obtained from each platform were pulled together and collated under nine compact themes with broad scenario outlines (see Table D9, D10, D11 and D12). In all, generating and ordering the scenarios for each platform was a time-consuming process, especially when bearing in mind that each scenario's had its specific advantages and drawbacks. The systematic evaluation of the scenario process was not presented in detail in this study due to the sheer bulky/lengthy nature.

The ranking of scenarios by participants was carried out to guard against the tampering with the original storyline provided by participants if left solely to the researcher to evaluate. To make the choice of the target vision credible, easy to select and valid, the nine visions were reposted to all platforms excerpt from the blog. Participants were asked to rank the scenarios in their order of preference. The ranked visions were further re-arranged from top to bottom in line with participants' order of ranking. To achieve this, participants for email and Facebook were re-

contacted. Surprisingly, quite good responses were received, which was quite encouraging - their response explains reasons for high record of participation at this stage (see Table D9 and D10).

Table D9: Shows the first second and third downscaling of scenarios

Number of scenario's	Visions/Scenarios	1st collated by researcher from participants first attempt					2nd further downscaled by researcher					3rdranked by participants					
		WhatsApp	Facebook	Email	Blog	Total	WhatsApp	Facebook	Email	Blog	Total	WhatsApp	Facebook	Email	Blog	Total	Rankling
1	Sustainable transport system	√				01	√				01	√				01	15th
2	A city for the rich and poor.					00					00					00	
3	A city of skyscrapers-with adequate housing for all	√				01	√				01	√				01	16th
4	An sustainable and accessible road network	x		√		01					00					00	17th
5	Commuter-friendly city	√	√	√	√	04	√		√	√	03	√				01	4th
6	Gated city	√				01					00					00	19th
7	Clean city-in and out	√				01					00					00	
8	Abuja a city dirt free city	√				01					00					00	18th
9	A recycling city	√	√		√	02	√			√	02	√				01	5th
10	Green city	√			√	02	√			√	02	√		√		02	1st
11	Garden city	√				01					00					00	
12	An Abuja; stable and effective services	√		√		02	√				01					00	14th
13	Abuja a city with good plexus of urban socio-economics elements	√	√		√	03	√				01	√			√	02	2nd
14	A city with reliable security/ community policing	√			√	02	√		√		02		√			01	6th
15	A city with 24 hours electricity	√				01					01					00	20th
16	A monumental city	√				01	√				01	√				01	
17	Abuja a tourist centre for Africa		√			01		√			01					00	
18	Energy efficient city	√		√		02	√		√		02	√	√			02	3rd
19	An effectiveness and efficiency system					00					00					00	
21	The fresh city					00					00					00	
20	Abuja the centre of dreams	√				01					00					00	

Number of scenario's	Visions/Scenarios	1st collated by researcher from participants first attempt					2nd further downscaled by researcher					3rdranked by participants					
		WhatsApp	Facebook	Email			WhatsApp	Facebook	Email			WhatsApp	Facebook	Email			WhatsApp
21	A city of availability	√				01					00					00	
22	A world class city fit for all	√				01					00					00	20th
23	Abuja the safe city	√				01	√				01					00	13th
24	A city for all	√				01					00					00	
25	Green and compact city	√	√			02					00					00	12th
26	Eco-environmentally friendly city offering equal opportunities	√	√			02	√	√			02	√				01	7th
27	A modern city for all	√				01					00					00	
28	A crime free city	√		√		02	√				01	√				00	
29	Sustainable and self-reliant city	√			√	02	√				01					00	11th
30	A city of unity	√		√	√	03					00					00	8th
31	A classless city					00					00					00	
32	A reference point among the 21st century cities					00					00					00	
33	A rebranded Abuja	√				01	√				01					00	
34	Pacesetting city		√			01					00					00	
35	A decongested city	√		√		02	√				01	√				01	9th
36	A place for everybody					00					00					00	
37	City of liberty					00					00					00	
38	Traffic free flow city					00					00					00	
39	A prosperous city	√				01	√				01					00	
40	A park and recreation city					00					00					00	
41	A technology inclined city	√	√			02		√			01	√				02	10th
Total		30	08	07	07	53	17	04	03	03	27	12	02	01	01	16	

Table D10: Shows the distribution of ranking for the 9 scenarios according to the fourth level ranking

Visions	Ranking according to platforms						Modification of vision name through researchers' back office work
	WhatsApp	Facebook	Email	Blog	Total	Rank	
1.The plexus of urban socio-economic factors	46	16	04	00	66	1st	**The vision of a socio-economically dynamic city:** This vision insists on imposing a general city system that facilitates common living standards for all city dwellers irrespective of their socio-economic status. The city structure reflects a spatial and social perspective across the different strater of the Abuja city and its neighbourhoods, making it an attractive town.
2. Traffic free city	10	26	02	00	38	2nd	**Sustainability Eventually Abuja:** A vision of the transformation of outdated transport infrastructure.
3. Centre of unity	10	05	11	00	26	3rd	**The cohesive city for all:** These persons prefer to align with the current vision of "UNITY" for Abuja.
4. Environmental friendly safe city	14	07	04	00	25	4th	**A vision of a compact and green city:** This vision is geared towards addressing environmental issues. The compact and green city vision offers an interesting urban landscape, a healthy functional mix and good quality design of its built environment. It offers access to green areas and open spaces for everyone. It calls for a collective realisation of climate change, reduction of extreme weather condition.
5. Monumental city	06	09	02	00	17	5& 6 tie	**A vision of a creative and tourist city:** Living arts, monuments and culture are clearly visible in a creative and tourist vision. This vision is to manifest itself in various forms, from creative use of public spaces to distinct urban furniture, labelling systems in identifying places and street lighting. Cultural expression is mainstreamed into public services.
6. City of shelter	04	05	07	00	17	5& 6tie	**A vision of a sustainable urban inward growth:** A city with various forms of neighbourhoods where different classes and generation must be willing to live together to curb the negative impact of segregationally divides between the rich and the poor. A city where mass and affordable housing is a priority and it's used as a means of controlling the outward growth of the city (urban sprawl). The city instead is encouraged to grow inwards in various forms creating a form of re-densification.
7. Technological rebranded crime free city	06	03	01	00	10	9th	**A vision of sustainable consumption modes:** It agitates for an "energy subsidiary principle" where the city becomes highly technologically inclined to energy efficiency. It encourages the use of diverse local and regional energy sources. A city where electricity/fuel challenge is reduced to its barest.
8. Population decongested city	06	02	00	00	08	8	**A community decongested city:** The vision insists on decongesting the city centre by making sure residents live at the city suburb and come to work at the city centre. Strong planning policies with measures such as planning green belts and

							corridors along the periphery of the town, the use of fiscal incentives and land pricing to guide against the upsurge of all manner of people into the city
9. Rebranded capital	03	01	01	00	05	5	**A vision of a leading, pacesetting and rebranded city:** The vision is concerned with efficiency and effectiveness in all sectors- a city system where the city leads in its entire ramification.
Total	105	58	31	00	222		

Table D11: Shows the summary of the first, second, third and fourth level scenario rankings and their downscales

Platforms	**1st downscaled and collated by researcher from participants first attempt)**	**2nd Level (downscaled by researcher)**	**3rd Level (according to participants 1st ranking)**	**4th Level ranking (according to participants 2nd ranking)**
Email	07	03	01	01
Facebook	08	04	02	01
Blog	07	03	01	01
WhatsApp	30	18	12	06

To arrive at four alternative futures, another set of ranking was applied. The essence of ranking was to reduce and eliminate bias that may arise in the process of choosing the alternative visions that eventually led to the choice of the 'most preferred vision' for Abuja. As participants arranged the nine scenarios in order of the most preferred to the least, they were asked to treat the process as 'Final' (see Table D12). The ranking led to the selection of a set of visions with four distinctive themes, as alternatives A, B, C and D, also termed scenarios 1, 2, 3, and 4 (see Table D12). Vision 1 came 1st position, with 40 point making it the most preferred followed by vision 4 (2nd), 6 (3rd) and 3 (4th). Vision 1 became 'the most desirable future vision' or ' normative scenario' invariably becoming the 'target vision and most preferred prototyped vision' for the city while the other three scenarios become complementary visions. At this point Vision 1 becomes the vision that must be engaged based on the prototyping of the e-backcasting technique. The choice of one scenario '**The vision of a socio-economically dynamic city'** as the most preferred vision was to fit the logic of an exploratory scenario better to be attained within a crucial 50-year timeline. The idea entails both social and economic demand that leads to improved quality of life while emphasising on a holistic sustainable city development

Table D12: The four vision/scenarios according to the fifth- stage of the ranking process

Alternative	Vision rank	Platform ranking				Description of Visions	Scenario
		WhatsAp	Faceboo	email	blog		
A	83	40	28	15	00	**A vision of a socio-economically dynamic city:** This vision insists on imposing a middle framework or a general city system that facilitates common living standards for all city dwellers irrespective of their socio-economic status. The city structure should reflect a broad spatial and social perspective across the different strata of the Abuja city and its neighbourhoods, making it attractive.	1
B	80	34	30	16	00	**A vision of a compact and green city**: This vision is geared towards addressing environmental issues. The dense and green city vision offers an attractive urban landscape, a healthy functional mix and sound quality design of its built environment. It provides access to green areas and open spaces for everyone. It calls for a collective realisation of climate change, mitigation of extreme weather condition.	2
C	77	38	30	09	00	**A vision of a sustainable urban inward growth.** A city with various forms of neighbourhoods where different classes and generation must be willing to live together to curb the negative impact of segregationally divides between the rich and the poor. A city where mass and affordable housing is a priority and it is used as a means of controlling the outward growth of the city (urban sprawl). The city instead is encouraged to grow inwards in various forms thereby creating a sort of re-densification, that foster social agreement regarding the quality of life, affordable price housing and family-friendly neighbourhoods.	3
D	76	33	29	14	00	**A vision of sustainable consumption modes**: This vision agitates for an "energy supplementary principle" where the city becomes highly technologically inclined with focus on energy efficiency. It encourages the use of diverse local and regional energy sources. It is a vision that guides a city with minimal or no crime at all. A city void of violence and security threats for all its inhabitants and a city where electricity and fuel deficiencies are eradicated.	4

Step 4: Using e-backcasting analysis procedure to plan for target vision

Identification of key/mid-time horizons for the desired vision

After obtaining the most preferred vision, the key time horizons and mid-term horizons were derived through adopting the timeframe with the highest number of participants. The e-backcasting analysis were obtained from three platforms, email, Facebook and WhatsApp (response from the blog was very poor, as such; attention was not given to it). The choice of key timeline in this particular case fell on the 50 years counting from 2017-2067 with 91 responses out of a total of 124 participants while 75 years' timeline came second with a total of 43 responses (see Table

D13). The remaining 178 participants gave no response. The key horizon guided the strategy towards achieving the target vision while the essence of 10 year mid- timelines (with highest number of participants with 76) would ensure that complexities that arise along the way are addressed using several other strategies without deviating from the targeted future (see Table D13). The choice of 50 year key/mid-timeline becomes necessary towards guiding the strategy for developing long-term vision and programmes that require critical thinking.

Table D13: The selection process of preferred key timelines for vision implementation

Key timeline	WhatsApp	Facebook	Email	Blog	Total	Mid-time timeline	WhatsApp	Facebook	Email	Blog	Total
50 year	65	17	09	00	91	5yearly plans	27	11	00	00	38
75 year	27	13	03	00	43	10 yearly plans	40	32	04	00	76
					124	15 yearly plans	17	09	03	00	29

Participant's reasons for preferring 50-year timeline plan for the vision are as presented below;

- It's an ample time to address the dilapidating and depletion effects of rapid urbanisation
- The critical timeline will give enough room for implementation of the vision
- Its assumed that the lengthiness of the timeline gives room for continuity of current plans
- It provides room for incubation and review of ideas
- The timeframe will also allow a gradual process of allocating and disseminating all the resources and information required to achieve the set objectives
- It will allow time for careful planning of infrastructure in line with future expansions
- The time is also adequate to accommodate significant developmental changes
- It is important looking at the fact that good policy and strategic administration planning require adequate time for accomplishment
- It gives enough room for mistakes and improvement to be accommodated
- It gives room to discover new technology and innovation that may come up It's good as developmental process need constant review due to technological advancement

Future implications for choosing the 10-year mid-timeline towards achieving the most preferred vision are as follows;

•It aids the assessment of strategies applied towards the execution of target vision
•It allows for easy notice of any alteration after first second and third attempts
•It allows ample time to plan across the 50-year plan thus fostering necessary adjustment or thwarting any external factors that may affect the programme
•It's suitable for short-term plans and review of the strength and weaknesses of the backcasting
•Plans can easily be re-accessed to ensure that achievements are commensurable within crucial timeline thus enabling either discontinuity or continuity of plans
•Is adequate for data gathering, and storage in order to have a consistent data bank
•To check if there is the need for any adjustment by incorporating new technology
•Compared with other timelines, it's more accommodating of changes and alteration observed in order to add to what has already been planned
•There is room for assessment of future implication of plans along set objectives

Strategies for achieving each mid-term plans and goals of the desired vision

For this procedure, participants were urged to construct the backcasting plan that investigates the desirable pathway explicitly within the given context of the 'preferred prototyped vision.' The re-envisioning process moved further into distributing the various strategies suggested by participants across the 10 mid yearly plan as a guide towards achieving the target vision by 2067. Critical thinking was applied to looking at the enormous challenges and the importance attached to attaining the most preferred vision. Table D14 shows the highlight of expected goals, strategies, suggested actions and possible actors towards achieving the target within each mid-timelines; from the first ten years 2017-2027, the next twenty years 2027-2037, the next thirty years 2037-2047, forty years 2047-2057 and finally the target year from 2057 to 2067 through a backcasting approach.

Participants identified 53 key strategies with a couple of recurring strategies for each timeline with 13 repeated in more than one platform such as constant communication with the general public, professional education and transfer of new knowledge, chain organisation, sustainable infrastructure that supports public transport, among others. Backcast for all platforms had a central role for institutions, technological change and in fact, a large part of the actions across the backcast was devoted to city administrators and planners. Participants urged them to ensure that the poor have access to affordable and quality essential amenities with focus on critical infrastructures like health, electricity and education, human capital development with emphasis on education with sound and indigent knowledge for possible transformation of the city of Abuja. Governance issues must be addressed as from 2017 for Abuja city to be a better place by encouraging interactive sessions between government and residents that is consistent with the yearnings and aspirations of its citizens and residents. The second vital aspects are that of the economic viability, often in combination with

energy sectors. The presence of many yearnings for enabling an environment for business and attracting investor related strategies is a consequence of the current recession the country is undergoing and the challenges that come with it. A total of 18 procedures were defined as forceful actions or carefully developed plans or methods for achieving the targeted prototyped vision by the stipulated backcasting timeline. Likewise, a list of actors required that can help build or take advantage of the opportunity and help avoid or neutralise obstacles were suggested by participants. Table D14 shows the selected strategies, goals, actions, and actors that facilitate the attainment of the target vision.

Table D14: Selected strategies, obstacles, opportunities, goals, actions weaknesses, and actors that facilitate the attainment of the target vision

Platform	Obstacles	Opportunities	Strategies	Action	weakness	Total	100%
Email	03	02	07	03	00	15	6.84
Facebook	06	03	10	04	02	25	12.82
blog	02	00	05	02	00	09	5.13
WhatsApp	19	08	31	08	03	36	30.92
Total	30	15	53	17	05	118	
100%	25	12	45	14	4		

Mid-term horizon	Goal	Action	Strategy	Actors
1st mid-term (2017 - 2027	Build resilient infrastructures by; • Improving the efficiency of transport routes through proper road network between communities • Adequate security for its populace • Promote inclusiveness by improving drastically socio amenities like recreational facilities, community centres, schools, market and health centre in the suburbs and surrounding. • Ensure that staffs of the ministries and parastatals update knowledge on sustainable city agenda through training every year • Offer a continuity administration policy by the end of each regime with the goal of implementing people oriented programmes.	• Submit yearly progress report obtained from the residence with regards to their desires and needs • Educate and engage in the transfer of new knowledge through primary and tertiary schools, universities and research institutes in the city. • Invest in more agricultural research and development of marketing instrument • Carry out fundamental research, using several development instruments. • Carry out 5- year mid-review on governance issues that must be addressed by 2027.	• Focus on using public office for the social good and advancement of the Abuja residents by providing key infrastructures on power and water. • Focus on human capital development by increasing minimum wage. • Tackling the issue of transportation, i.e., both mobility and accessibility to aid production •Tackle budget constraints and look into the issue of master plan alterations for the future check.	Key stakeholders for the realisation of this vision include; • Government Ministries and Parastatals • Ministry of the Environment, • Environmental organisations, • Universities (public or private •Research centres and institutes, • Companies/ Investors, e.g., Julius Berger, Dantata, and Sawoe • Citizens community heads, CBO, NGO e.g. Society for Family, Action Aid Nigeria
2ndmid-term (2027-2037)	• Improve education evaluation ratings in communities within the FCT by providing infrastructures makes the target time bound. • Implement a new performance review system for governance and ensure 100% participation of citizens • Reduce administrative time through the implementation of a computer-based record keeping system on every project and program. • Improve housing satisfaction. •Reach out to the 354 communities within Abuja with improved community health programs • Decrease expenses on transportation by creating more options.	• Emphasise service development • Provide a proper system of financial services and development that controls corruption and waste of resources. • Emphasise the potential for leapfrogging (e.g., creating an urban infrastructure and fabric that inherently supports public transport and the target time bound quantitatively. • Promote stable governance.	• Review on quality of power and water, education and health facilities for the poor. Power sector should be given an utmost priority in the sense that it precedes every other aspect of development as it helps the economic viability of the city. • Implement compensation policy • Adopt the Beijing strategy of less of degrees, more of artisans for economic progress and national prowess. • Give real estate developer opportunity to improve the city development statue both in suburb and city centre.	

Mid-term horizon	**Goal**	**Action**	**Strategy**	Actors
3rd mid-term (2037- 2047)	• By the 3rd mid-term, provide affordable housing within satellite towns/ suburbs through urban renewal • Technological change including fuel-efficient technologies by importing cars, buses, and trains that are ecologically friendly-use less fuel, clean biofuel products, • Identify factors which contribute to poor performance and technical inefficiency of collection /disposal operations for both bulky household/ liquid waste in the city • Carry out structural and organisational change towards city management and services rendered to the public by government ministries and parastatals charged with the duty of developing the city • Invest in manufacturing and health sector • Work on making Abuja environment an investor's haven for both indigenous and foreign companies/ investors	• Keep knowledge up-to-date by creating avenues where the ordinary man on the street can attend at least seminars, conferences, and classes every year to keep updated with the visions of Abuja city. • Encourage cultural and behavioural: change in price, land use planning to acceptance of new technologies, shift towards more sustainable substitutes and services. • Assess the anti-corruption fight with the intention of making input about how it can be strengthened given the hard battle. • Also carry out a constant review on development in the agricultural sector, youth employment through government programs like Sure-P, the N-Power programme and others	• Establishment and connect the rail system and bus route across neighbourhoods. • Create enabling environment for entrepreneurship in the city to thrive well to reduce the gap between varying social class in the town • Give health sector the needed attention. Send doctors/medical students for further training. • Encourage light industries. • Make it easy for the mediocre, average and low-income earners to access necessary housing infrastructure through a mass housing scheme • Create a liveable, sustainable enabling environment to attract investors and businesses.	• Religious organisation • Research contractors
(4th mid-term (2047-2057)	• Offer a continuity administration policy and program for Abuja city administrators by the end of each regime with the goal of implementing people oriented programmes,	• Key security areas such as combating terrorism and dealing with other security threats by the military services, • Create a web-based system for tracking down and reporting of criminal activities within the city. • Improved Educational and environmental standard of the city,	• Review plans on human capital development within the satellite towns to create more jobs • Invest more in education as the bedrock of economic growth. • Consolidation of security, monitor and re-assess the level of implementation.	

			• Improve waste management to allow re-use/ improve social/economic value.	
5th mid-term (Target year 2067).	• Review emerging economic realities and how government policies can be exploited to address existing challenges and contribute to the recovery efforts. • By instituting waste management volunteer program by getting at least 50% of residents in Abuja to help ease community efforts,	• Assessing governance performed from 2017 to 2067 and use vital information identified to strengthen and enable the city continues to make progress while also making known areas that did not fare well and in need of improvement,	• Evaluate and review previous plans • Build economic growth through investment in more infrastructures • Focus on reducing poverty through education/training of citizen's to orientate and re-orientate them • Distributive and redistributive policy to help gather funds for City development. • Improve literacy through related technology in all sectors. • Focus on participatory governance and class structure through critical evaluation of implementation process.	

Challenges and prospects of the target vision

50 obstacles, weaknesses and opportunities were identified covering a broad range of issues, mostly specific to the target vision. However, five opportunities out of 15 were classified as common to all platforms. Among other obstacles are the mentality of citizens, reduced maintenance, lack of political will, loss of focus on the part of government and inconsistency in policy implementation, as well as insecurity, the residents' challenge of ethnic/cultural diversity. A total of 118 comments evenly spread across the four platforms make up action (15%), strategies (45%), weakness, opportunities (11%), and obstacles (26%) (See Table D14). WhatsApp platform had the highest number of opportunities and obstacles possibly because its implementation and prototyping process took longer time while Facebook identified the highest number of actions which flows with the number of fundamental changes that need to be enforced to reach the target vision. The blog platform recorded the lowest number of items due to the inability of participants to give a response on time. Possible weaknesses, obstacles, and opportunities for the achievement of the target prototyped vision for Abuja are as presented in Table D14.

Table D15: Possible weaknesses, obstacles, and opportunities for the achievement of the target prototyped vision

Possible weakness	Obstacles that may hinder the achievement of this prototype vision for Abuja	Opportunities this vision will allow;
• It requires ample time to realise the vision • Within the incubating time changes might occur • Diverse ethnic, cultural and political opinions might incapacitate the process • The views of non-professionals may not be popular in the process because the vision is highly technical • It is an ambitious vision that may be tasking in low-income country like Nigeria	• Difference in regional mentality/bad orientation of the populace • Granting contracts without follow-up, thus affecting productivity. • Poor maintenance culture. • Lack of co-operation of citizens through their uncared attitude towards keeping parks &open spaces clean. • Lack of political will on the part of the government • Lack of co-ordination between communities, politicians, and experts from different sectors • Lack of involvement of competent and exceptionally qualified persons in areas or positions of decision making in development plans • Sharp corrupt practices, self-gratification, and personal gains • Too many alternatives outside the plan leading to slums growth • Government bureaucracy • Lack of participation by citizens in the decision-making stages caused by inequality precipitated by the socio-economic disparity. • Political interest is resulting in the indiscriminate appointment of weak hands as minister to head the FCT project. The random selection tends to influence their performance. • Favouritism and nepotism, • Regional intolerance, • Lack of goodwill by the leadership. • Acute shortages of human resources in town planning lead to the inability to plan towns that blend modernity with own peculiar cultures and characteristics. • Inadequate or reliable data and statistics. • The involvement of foreign consultants may limit understanding of the intricate and complex nature of such a project. As this was the case with the failure of the Abuja planners to accurately forecast the demographic movement to Abuja in the initial phases of its development which has created problems of housing, transportation, water, environment, etc. On this basis, the prototyped vision may face same issues	• Inclusive participation, growth, and development. • A re-branding of not just Abuja but Nigeria as a whole through tourist opportunities • Mass employment of citizens in different sectors like food, transportation, medical • An element of green sustains the city environment • Open up opportunities for hosting unique world-class structures with dual benefits; first, regarding aesthetic and treasury, secondly; economically through income generation. • Better services and living conditions for the ordinary citizens. • Proper waste management measures will bring more income for the government • Generate great desires in all citizens to deliver the best to the table at all time for the progress of the FCT. • Growth regarding security measures • Efficient and affordable transport system • Abuja could be governed by a Mayor rather than a minister since the position of a mayor is by election.

SCHOOL OF ARCHITECTURE & PLANNING

UNIVERSITY OF THE WITWATERSRAND JOHANNESBURG

Appendix E: Participant Information Sheet **(attached to invitation emails)**

Study Title: Adaptability of participatory backcasting to e-backcasting for inclusive sustainable city visioning for African cities: A prototyped study of Abuja, Nigeria

Target participants: Nigerians resident home and abroad (the diasporas'), ages 18 years and above, who are active members of the internet community.

Dear Sir/Madam

One major approach urban planners have devised in tackling urbanisation challenges is by adapting methods that facilitate inclusion and participation in decision-making both in long-term city vision and plans that can motivate and accelerate transitioning towards sustainable city goals. This study is aimed at conceptualising a prototype action based research by adapting participatory e-backcasting approach as an online resource (outside e-govt. platform).

Four platforms will be used for the interactions online; blog, Facebook, WhatsApp and email, with these platforms, four prototype iteration levels will be carried out and at each stage; feedback will be emailed to participants. The first iteration takes place at piloting, scoping and testing stage of the research instruments. The second iteration deals with problem deliberation and collective re-visioning of Abuja city vision. Based on information obtained from the feedback, the third engages backcasting approach. The fourth has to do with obtaining demographic information and it cuts across all three stages. This is to validate the potential of the approach in enhancing inclusive participation. Anonymity online cannot be guaranteed because of the interactive nature of platforms used, but confidentiality can be ensured as all responses will be aggregated such that names are not mentioned at the final report.

Participation is voluntary and you may withdraw from participation at any time without penalty. You will not be exposed to any risks as a result of your participation in this study. No payment will be made to you in return for your participation. You will have the option of receiving feedback regarding the study findings, if you so wish upon request. To access online platforms, click the URL to the blog. By clicking the URL link means you voluntarily consent to participation. You can follow on WhatsApp cityoptimist36, post comments on the blog: https:/cityoptimist or send e-mail to cityoptimist360@gmail.com. If you know anyone that fits into the target participants (listed above) and may be interested kindly forward to such persons and if you have any questions about this study please contact me or my supervisor Prof. Daniel Irurah at daniel.irurah@wits.ac.za or +27 011 717 7643

Ache Stella Achuenu, (PhD Candidates)
School of Architecture and Planning,
Faculty of Engineering and the Built Environment.
Email: saachuenu@gmail.com

Appendix F: Moderation Guideline for Participants

Participant's comments are pre-moderated to check if they comply with the participation guidelines below. If comments don't meet with the standard, they will not be published. I will always try to acknowledge comments added within a 48 hour period during the time frame allowed for data collection for each stage work. If you have a query about why your contribution has not appeared or disappeared on the site, our participation guidelines or approach to moderation, please email me at cityoptimist360@gmail.com. Thus, when posting comments, please observe our site participation guidelines which are as follows:

- be respectful of others who use this site
- stay on the topic
- do not use language that is offensive, inflammatory or provocative (this includes, but is not limited to, swearing and obscene or vulgar comments)
- do not break the law (this includes libel, condoning illegal activity and contempt of court)
- do not use this site for party political purposes or pornography (this site is solely for academic work, so it's inappropriate to engage in party-political activity or otherwise).
- please do not post personal information in comments such as addresses, phone numbers, or other online contact details, which may relate to you or other individuals
- do not impersonate or falsely claim to represent a person or an organisation
- do not attempt to log on using another user's account
- do not make any commercial endorsement or promotion of any product, service or publication not relevant to the discussion in the blog or any other platforms.
- If aged 17yrs or below, please note you are not allowed to participate. This restriction arises from ethics commitment not to involve minors (those below 18 as participants'.

LET US KNOW YOUR THOUGHTS.

Follow and comments on WhatsApp, share your thoughts and ideas by posting more comments on the blog or send e-mail (cityoptimist360@gmail.com).

Appendix G: Ethics Clearance Certificate from University of the Witwatersrand



Research Office

HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)
R14/49 Achuenu

CLEARANCE CERTIFICATE	PROTOCOL NUMBER: H16/07/01
PROJECT TITLE	Participatory e-backcasting for inclusive re-visioning of sustainable cities in Africa: The case study of Abuja, Nigeria
INVESTIGATOR(S)	Mrs A Achuenu
SCHOOL/DEPARTMENT	Architecture and Planning/
DATE CONSIDERED	22 July 2016
DECISION OF THE COMMITTEE	Approved
EXPIRY DATE	11 October 2019

DATE 12 October 2016 CHAIRPERSON (Professor J Knight)

cc: Supervisor : Professor D Irurah

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and **ONE COPY** returned to the Secretary at Room 10004, 10th Floor, Senate House, University.

I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. I agree to completion of a yearly progress report.

Achuenu
Signature

14 / 10 / 2016
Date

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES