CONCEPTUAL FRAMEWORK FOR THE SUSTAINABLE MANAGEMENT OF SOCIAL (PUBLIC) HOUSING ESTATES IN THE NIGER DELTA REGION OF NIGERIA

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DEDICATION

On the whole, I dedicate this work to the Almighty GOD who by his unlimited grace and mercy engineered the completion of this study. To him Glory is Given-***AMEN***.

DECLARATION

The work presented in this thesis entitled "A Conceptual Framework for the Sustainable Management of Social (Public) Housing Estates in the Niger Delta Region of Nigeria" is, to the best of the researcher's knowledge and belief, original. I hereby faithfully declare that this thesis is my own work and effort, and has not been previously written by another person, published or submitted for the award of any academic degree, excluding where due acknowledgement has been duly made in this thesis text.

Signed ……

Date ……

ABBREVIATIONS

ADB: African Development Bank

ADICP: Access Detail Information Contain Project Proposals

BB: Bureaucratic Bottleneck

BLPRW: Better Life Programme for Rural Women

CAP: Chapter

CAPDAS: Computer Assisted Qualitative Data Analysis Software

CBN: Central Bank of Nigeria

CBO: Community Based Organisation

CBOS: Community Based Organizations

CBPDM: Concept Behind Project Development and Management

CDC: Community Development Committee

CPE: Community Social Perception

CUUP: Community Urban Upgrading Programme

DETR: Department of Environment, Transport and the Regions

EEHCE: External Housing Estate Community

EFE: Economic and Finance

EITI: Extractive Industries Transparency Initiative

ENV: Environment

FBO: Faith Based Organisations

FBOS: Faith Based Organizations (FBOs)

FCT: Federal Capital Territory

FCTA: Federal Capital Territory Administration

FEC: Federal Executive Council

FER: Financial Expenditure Reduction

FGN: Federal Government of Nigeria

FGSHLB: Federal Government Staff Housing Loan Board

FHA: Federal Housing Authority

FL: Fund Lacking

FMBN: Federal Mortgage Bank of Nigeria

FMWH: Federal Ministry of Works and Housing

GNP: Gross National Product

GOVT: Government

GRA: Government Reserved Area

HSMO: Her Majesty's Stationary Office

IADF: Inadequate Funding

ICMWS: Improper Costing of Maintenance Works

IEMT: Improper Evaluation of Maintenance Task

IFMA: International Facility Management Association

IMPL: Implementation

IPC&B: Improper Project Costing and Budgeting

ISL: Lack of Leadership Stability

ISMWS: Improper Scheduling of Maintenance Works

LCCT: Life Cycle Cost Techniques

LGAs: Local Government Authorities

LOKMS: Lack of Knowledge Maintenance Staff

LPS: Lack of Policy Support

MCI: Material Increasing Cost

MER: Monitoring, Evaluation and Reporting

MGTT/DM: Management Team and/or Decision Makers

ML: Maintenance Lacking

MSE: Management Structure

MWDS: Maintenance Work Delays

NAL: Need Assessment Lacking

NBRRI: Nigerian Building and Road Research Institute

NCLHUD: National Council of Lands, Housing and Urban Development

NDB: National Data Bank

NEEDS: National Economic Empowerment Development Strategy

NGO: Non-Governmental Organisations

NGOS: Non-Governmental Organizations

NHP: National Housing Policy

NNPC: Nigeria National Population Commission

NNV: Nigerian National Vision 20: 20 20

O&M: Operation and Maintenance

P&D: Planning and Development

PA: Planning Authorities

PCHUD: Presidential Community on Urban Development and Housing

PCM: Post-Construction Management

PCMM: Planned Corrective Maintenance Management

PDC: Property Development Company

PMIBS: Primary Mortgage Institution and Building Societies

PMM: Planned Maintenance Management

PPMM: Planned Preventive Maintenance Management

PRBBE: Professional Regulatory Bodies in the Built Environment

PRMM: Planned Reactive Maintenance Management

PRRMM: Planned Routine/Refurbishment Maintenance Management

PROCONT: Professionals and/or Contractors

PSL: Policy Support Lacking

QSR: Qualitative Research Software

RESID/TENT: Resident and/or Tenant

RICS: Royal Institution of Chartered Surveyors

RII: Relative Importance Index

RSH&PDA: Rivers State Housing and Property Development Authority

RSUST: Rivers State University of Science and Technology

SA&EL: Stakeholder Assessment and Engagement Lacking

SEC: Security and Exchange Commission

SHA: State Housing Authority

SHEM&P: Sustainable Housing Estate Management Strategy and Practice

SON: Standard Organisation of Nigeria

SPDC: Shell Petroleum Development Company

SPSS: Statistical Package for Social Science

SSPHEM: Sustainable Social (Public) Housing Estates Management

TECH: Technology

UBPAPC: Understanding Bureaucratic Process Award Project Contract

UDBN: Urban Development Bank

UK: United Kingdom

UNCDF: United Nations Capital Development Funds

UNCHS: United Nations Centre for Human Settlements

UNDP: United Nation Development Programme

UNEP: United Nation Environment Programme

UN-HABITAT: United Nations Human Settlements Programmes

UNICEF: United Nation Children Fund

UNSD: United Nation Sustainable Development

UPMM: Unplanned Maintenance Management

USEIA: United States Energy Information Administration

WCED: World Commission on Environment and Development summit

WCS: Weather Changes

WIAPB: Well Informed Project Benefits

WL: Willingness Lacking

WSP: Water and Sanitation Programme (World Bank)

NDRDMP: Niger Delta Regional Development Master Plan

FMLHUD: Federal Ministry of Lands, Housing and Urban Development

HRW: Human Right Watch

ABSTRACT

Sustainable management of social (public) housing estates after their provision is becoming necessary in recent years due to the main purpose of meeting cheap, decent and safe housing needs of the citizens, and on the premise that housing is an indispensable human need. Notwithstanding of these, there is evidence that Sustainable Social (Public) Housing Estates Management (SSPHEM) are not being appropriately and successfully practiced. The body of knowledge reveals that the numbers of housing estates were paramount and emphasised by the relevant scholars, rather than, the effective post-construction management of these estates, for improvement of the social (public) housing estates deplorable conditions and to achieve the benefits of sustainability.

The overall aim of this research is to develop a framework for Sustainable Social (Public) Housing Estates Management (SSPHEM) in the Niger Delta region of Nigeria. This research aim was attained through a critical literature review and investigation of themes relevant to the objectives: identification of the estate management principles and approaches currently used in the management of social (public) housing estates; identification of the maintenance management types and practices in the total housing estate management; identification of the underpinning concepts in stakeholder's management and the relevance/ importance of their inclusion in the management; and to conceptualise sustainability in the context of social (public) housing estate management and identify those beneficial sustainability factors for social (public) housing estates.

The research has drawn on works in relevant research methodologies, and has taken an interpretative pragmatic stance with an embedded multiple case study, being adopted to perform exploratory and explanatory case studies into the social (public) housing estate post-construction management. Qualitative and quantitative data was collected using 16 Nr) semi-structured interviews, 100 (Nr) questionnaires, documentation and direct observation. The primary data was analysed using NviVo 10 and SPSS 20 packages and interpretive thematic content analysis techniques.

An operational SSPHEM framework was developed for the social (public) housing estates that involved the integration of the appropriate: estate management approach; building maintenance approach; relevant stakeholders' involvement; and the beneficial sustainability factors. Using unsustainable management approaches was the main issue to the current social (public) housing estates incessant deplorable conditions and deficits. The study found that in-house estate management and unplanned maintenance management approaches; non-

involvement/inclusion of the relevant stakeholders; and the meagre awareness, consideration, interlocking and integration of the essential and beneficial sustainability factors, were the main features of unsustainable management. The study established fourteen main factors hindering the sustainable housing estate management and maintenance approaches effectiveness. The study established six reasons for non-stakeholders involvement and seven essential and beneficial sustainability factors for the benefits of sustainability in the social (public) housing estate. The study found that effective and sufficient awareness, understanding, identification and assessment of the appropriate drivers within each theme, and a requirement for stronger correlation amongst the drivers is vital and assisted in the implementation of the operational SSPHEM framework.

Operationalising the developed SSPHEM framework suggested strategies, that in itself should ensure improvements in the current social (public) housing estates qualities and conditions and would reduce shortages, with significant benefits appreciation. The framework enhances: monitoring; evaluation; and reporting; on social (public) housing estate performances and sustainability, providing information on areas needing enhancement. The SSPHEM framework is an effective instrument for the end-users of the framework for the social (public) housing estates post-construction management, and can be adopted in other regions of Nigeria, and developing and developed countries in the world over.

The research endorsed that sustainable social (public) housing estate post-construction management should be achieved by users of the framework, being willing to make a sustainable change to the legal, cultural, financial/economic, social and political regulations to the practices of the current management approaches. Studying the relevant sustainability assessment toolkits and testing the developed SSPHEM framework, strengthens the sustainability of the framework purpose achievement. Federal and State Governments Housing Authorities staff capacity, training and research and development should encourage innovative and proactive practices for the effective performance and improvement in social (public) housing estates post-construction management.

Keywords: Building Maintenance Management; Estate Management; Operational Framework; Post-Construction Management; Social Housing; Stakeholder Management/Importance; Sustainable Development;

CHAPTER 1: INTRODUCTION

1.1. BACKGROUND TO THE STUDY

Housing is the centre for many socio-economic activities and stands as a mark of prosperity, social acceptance, and an element of urban development and growth (UN-Habitat, 2012; Oyebanji, *et. al.*, 2011; Wapwera, *et. al.*, 2011). The availability of decent housing for each family defines the level of development which a country has reached; therefore, housing is fundamental as an important issue for people in all corners of the world, since their well-being is enhanced by their total level of enjoyment of certain standards of living condition (UN-Habitat, 2012 and 2011 (cited in Jimoh, *et al*., 2014); Idrus and Siong, 2008). Similarly, housing provides a link between the physical development of a city, and its social and economic outcomes. Housing in terms of the built environment inter alia provides: accommodation; jobs; education; and health services; which in the research context must be: accessible; safe; hygienic; aesthetically pleasing; and also sustainable (Jiboye, 2011). The housing in this context is social (public) housing estates provided, owned and managed by the Federal, State and Local governments in the Niger Delta for its low-income and less advantaged citizens. As a result, sustainable management of such social housing estates would provide a strategic opportunity where the set of all activities to produce and allocate housing services from the existing social housing estate is achieved (Priemus, *et. al.*, 1999). Similarly, it will provide the management of the operation with the control of: social housing estates facilities; and stakeholders; on behalf of the client or property owner (Frej and Pesier, 2003). In addition, sustainable social housing management provides for the monitoring, assessing, maintaining, evaluating and accounting for a social housing estate's usable life and condition (Frej and Pesier, 2003). Hence, the post-construction management of social (public) housing estates is akin to adopting the principles of management such as: planning; organising; controlling; directing; communicating; co-ordinating; and forecasting. In addition, it encompasses the processes, systems and the human resources to manage the life cycle of all the social housing estates (Rhodes, 2008). Therefore, the mere construction of social housing estates is not sufficient on its own, but, what matters much more is sustaining the assets (social housing units) created by the improvements (Ihuah, 2007; Franks, 2006). This provides the opportunity to see beyond the project construction phases, and to appreciate the benefits of operating such estates as more than just an investment (Ihuah, 2007; Franks, 2006). As such, any social housing estate projects, which have been provided without a

framework for their future management, are suspected as being not sustainable. However, to sustain is to continue without lessening what exists (Brandon and Lombardi, 2011).

Sustainability was first conceptualised in the World Commission on Environment and Development summit (WCED, 1987, p.8). It provides that a sustainable development must be one that *"meets the needs of the present without compromising the ability of the future generations to meet their own needs''* (Bruntland, 1987, cited in Brandon and Lombardi, 2011, p.21 and Cooper and Jones, 2008). However, debates on the concept of sustainable development exist, depending on the interests, strategies, the varied cultural differences, ideological inclinations and development goals for its actualisation (Worika, 2002). The current thinking looks to provide for the inclusion of social, economic, political, and development issues and not just environmental issues alone. According to Brandon and Lombardi (2011, p.21), sustainable development is *"a process which aims to provide a physical, social and psychological environment in which the behaviour of human beings is harmoniously adjusted to address the integration with, and dependence upon nature in order to improve, and not to impact adversely, on present or future generations".* Therefore, sustainable development provides for a frame to help ensure long-term ecological, social, and economic growth in society (Ding, 2008) and to ensure a better quality of life for everyone now and for generations to come. In that case, social (public) housing estates need to have a strategy for their sustainable management. This management would incorporate the sustainability agendas and allow the future generations to access social housings (Cooper and Jones, 2008). In addition, the management will provide an improved social (public) housing estate quality, safety and comfort to the people within the built environment. However, it is suspected that this can only be attained where such a strategy is in association with good building maintenance practices, stakeholders' involvement and that of an appropriate estate management approach.

Building (housing) maintenance requires all works to be undertaken properly as to keep, restore and improve every facility including every part of a building, its services and surrounds, to an agreed standard determined by the balance between the need and the available resources (Hamid *et. al.*, 2007). Again, Olanrewaju, *et. al.;* (2011, p.263) asserted that building maintenance is that which provides '*processes and services to preserve, repair, protect and care for a building's fabric and engineering services after completion, repair, refurbishment or replacement to current standards to enable it to serve its intended functions throughout its entire life span without drastically upsetting its basic features and use'.*

Therefore, it provides the understanding of the words 'maintain', 'repair', and 'alter' as to reflect the requirements of the clients, end users and the community. As a result, every social housing estate should be kept in a condition appropriate to its use and to allow contributions from the stakeholders in the estate management if its sustainability is to be achieved (Cooper and Jones, 2008).

The stakeholder involvement in the sustainable management would provide awareness to stakeholders' of the idea behind the development; to know about the benefits of the project; and to permit access to detailed information contained in the social housing estate management strategy (El-Goharry, *et. al*., 2006). It will equally provide transparency, accountability, good governance and a corruption free system in the project award process and management. Furthermore, the analysis to identify the stakeholders for sustainable social housing estate management will provide an idea on who is a legitimate, power or urgency stakeholder in the housing estates. Therefore, the stakeholder's inclusion (primary or secondary stakeholders) in social (public) housing estate provision and management decision-making phases are significant when seeking to manage in a sustainable manner.

Above all, sustainable social housing management would provide benefits such as: comfort; cheap to maintain; and should complement the specific environment. In addition, sustainable social housing management should be housing practice which strives for issues such as: integral quality; including social; economic; and environmental; preferences in a broad way. As a result, Cooper and Jones (2008) argued that there is a need to incorporate the principles of sustainability if social housing is to provide a good standard of living. At the same time, a sustainable social housing estate would be one characterised by the minimization of the environmental impacts, for example: of material use; energy consumption; and water consumption; etc.; during the whole service life-cycle of the estate.

In developing countries, the expanding urban area and population faces a lack of adequate social housing provision and management, and this situation is getting worse yearly (Ebie, 2012; Seong-Kyu Ha, 2008). Also, 60-80% of the estimated population of developing countries lives in shanty towns, slums and uncontrolled environments (Wapwera, *et. al.,* 2011; Habitat, 2006a). In addition, Habitat (2006a) and Jiboye (2004) indicate that there was no evidence of improvement in the low-income group's social housing estates conditions in terms of affordability, tenure, standard and access to services. At the same time, some structural policies such as the structural adjustment programme, 'the provider' and 'the supporter' paradigms have been formulated to address these problems in developing countries

and in Nigeria particularly exist, but, it has never helped to improve the situations (Ebie, 2012; Wapwera, *et. al.*, 2011; Aribigbola, 2008; Okoroafor, 2007).

In Nigeria, several 'provider–oriented' government driven strategies have been adopted such as Federal and State Government housing schemes, slum clearances and resettlement (Aribigbola, 2008); but it is suspected that they have had no remarkable impact in social housing production in the country (Kabir and Bustani, 2012). The 2004 statistics indicated that about 70% of Nigerians technically are homeless (Ebie, 2012; FGN, 2004) and this situation has not changed up to today (Ebie, 2012; Wapwera, *et. al.*, 2011). At the same time, there is evidence that the social (public) housing estates provided are now unoccupied, vandalized, uncompleted, and abandoned (Fatoye and Odusami, 2009; Fatoye, 2009; Kadiri, 2004). This situation can be found particularly in the Niger Delta where all the features and benefits of housing highlighted above is suspected as being lacking. Therefore, social (public) housing estates have become white elephants within the very poor or low-income people that desperately need it (Ihuah, 2007). This situation has been assumed to be caused by a lack of consideration of a strategic process for the sustainable management of the social (public) housing estate which has yet to be developed. Further, it is predicated that wider institutional issues, stakeholder's involvement and good housing maintenance practices are lacking. However, it is also suggested that sustainability in social housing estates provision and management is vital (Olotuah and Bobadoye, 2009) but, as yet no conceptual framework or model to achieve this situation has been developed.

From the analysis above, it is suggested that a framework is needed which integrates: sustainability factors; appropriate housing maintenance management; stakeholder involvement; and good estate management practices; together in the context of social (public) housing estate management. As a result, this research seeks to explore how these concepts could be merged and operate within a framework which could provide for the social (public) housing estate to be managed in a sustainable manner. Therefore, the focus of this research is to develop a framework for the sustainable management of social (public) housing estates in the Niger Delta region of Nigeria.

1.2 STATEMENT OF PROBLEM

In the Niger Delta, literature and observation has shown that constructed, commissioned and on-going social (public) housing estates provided, owned and post-construction managed by the Federal and State Government exist. However, remarkable shortages of social housing estates have remained a major challenge facing people in this region (Ebie, 2012). This is suspected to be tied to the exploration and exploitation of crude oil activities which characterize the region. In addition, there has been unprecedented urbanization and uncontrolled population increases in the Niger Delta. Such development is believed to increase the challenges of successfully sustaining social (public) housing estate maintenance and management.

Figure 1.1 Housing Estate Conditions and Situations in Niger Delta

The dominance of the problems is the unsustainable post-construction management approach prevalent as shown in Figure 1.1 above, and the need to avert the housing estate challenges prominent in the region is obvious (Ebie, 2012; Wapwara, *et. al.,* 2011). The number of: unoccupied; incomplete; vandalized; abandoned; and unsuccessful social housing estates in the region (Kadiri, 2004) are symptoms of unsustainable estate management practices. Evidence of corruption practices; lack of good governance and decentralization of power; and the lack of active involvement of stakeholders in social housing estate management decision-making exists (Kadiri, 2004). Wapwara, *et. al.;* (*2*011), Kadiri (2004), and Oladapo (2002) identified that there are shortcomings in the infrastructural services and amenities provided in the social housing estates. At the same time, the social (public) housing estates do not cope with the demands of the tenants which characterizes itself in the untold hardships in living

standards and continuous paucity of needed homes (Kadiri (2004), and Oladapo (2002). Features such as: overcrowding; noise pollution; and crime are common because most of the population cannot appropriate housing and therefore live in slums and squatter areas of the region (Jiboye, 2009; Olotuah and Ajenifujah, 2009). Another major issue is the predicted lack of an existing housing/building maintenance management standard for social housing estates. The triple principles of sustainability namely: social; economic; environment; is inactive in the current management practices of social housing estates (Olotuah and Bobadoye, 2009). Consequently, the Niger Delta population is prone to these stated housing estate challenges and deficits, which support the need for the present study.

1.3 RESEARCH QUESTIONS

Following the background information, the problem statement and synoptic literature review, the key research questions which this research seeks to address are:

- What is the current condition and situation of the social (public) housing estates in the Niger Delta?
- How and what estate management method is currently being used in social (public) housing estate post-construction management in the Niger Delta region of Nigeria?
- How are the social (public) housing estates currently maintained and why such a maintenance management style?
- How is the stakeholder in social (public) housing estates currently being considered and involved, and why should they be included?
- What are the critical sustainability/sustainable development factors that need to be considered for the sustainability of social housing estates?
- How and of what relevance/importance would the integration of the sustainable factors with appropriate housing maintenance type, stakeholder involvement and estate management method be to the management of social housing estates in the Niger Delta region of Nigeria?

1.4 RESEARCH AIM AND OBJECTIVES

The aim of the study is to investigate the social (public) housing estates conditions/situations, management approaches and issues that would lead to sustainability, challenging the Federal and State Housing Authorities in order to develop a framework for the sustainable management of social (public) housing estates in the Niger Delta region for practice

implementation. Therefore, this present research effort is directed to accomplishing the following objectives:

- Identify the estate management principles and approaches used in the management of social (public) housing estates;
- Identify the social (public) housing estates maintenance management types and practices in the total housing estate management;
- Identify the underpinning concepts in stakeholder's management and the relevance/ importance of its inclusion in the management of public housing estates;
- Conceptualise sustainability in the context of social (public) housing estate management and identify those beneficial sustainability factors for social (public) housing estates;
- Develop a framework that would be used for the sustainable management of social housing estates after production in the Niger Delta region of Nigeria**.**

1.5. SCOPE OF THE STUDY

Chapter four of this present study provides more details of the scope, justification and other situations about the position of the Niger Delta, in and within Nigeria. It also justifies why the choice of housing estates in the Niger Delta as case a study was a typical and critical one, and presents a brief historical position and responsibilities of this present study unit of analysis (Federal Housing Authority and State Housing Authority). It is opined that no research or study is completely imagined, planned and carried out (Ferman and Levin, 1975). Therefore, the scope of this present research is limited to the exploration, explanation and development of Sustainable Social (Public) Housing Estates Management (SSPHEM) framework for the Federal Housing Authority, State Housing Authority and practicing Practitioners in the Niger Delta region of Nigeria for social (public) housing estates post-construction management. This conceptualised, formulated and developed framework derived from this research work should enhance the awareness, assessment, identification, implementation and monitoring and reporting imperatives between the various housing estates management team/staff in the Federal and State housing Authorities and between the professional/contractors practicing in providing the post-construction management of social (public) housing estates in the Niger Delta and in Nigeria at large. This framework in its entirety is opined to help improve the level of understanding, awareness and effectiveness in the practice of managing the social (public) housing estates in a sustainable manner amongst the various units of authority charged with the portfolio of managing the social (public) housing estates. It will help to

explore such issues as: the essential beneficial sustainability factors; the estate management methods; housing maintenance management approaches; barriers; stimulants; and their impacts; in an attempt to sustainably manage the social (public) housing estates in practice.

It should be noted that this research explores the development of the SSPHEM framework from a conceptualised strategic view point between the concept of sustainability, estate management methods, housing/building maintenance management approaches and stakeholder management relevant in post-construction management. The sustainability of housing stocks and the post-construction management can be enhance with the effective integration of the sustainability factors together with the appropriate maintenance approach, effective involvement of the relevant stakeholders; and applying the appropriate estate management method (Cooper and Jones, 2008; Banfield, 2005).

1.6. EXCLUSIONS, LIMITATIONS, CONSTRAINTS, RESERVATIONS OF THE STUDY

The exclusions, reservations, limitations and constraints highlighted in this section actually define the precincts within the context of the present research. These were done with the commitment to addressing the study aim and to achieve the research objectives, and which was in no way doubtful to the stated ingredients above. This reflects to suggest that the study was really carried out in and within a real world practical built environment.

1.6.1 Exclusions

The present study is based on determining how and why the social housing estates of the Federal and State Government in the Niger Delta region of Nigeria are in deficit and deplorable conditions. At the same time, it is concerned with the implementation of a sustainable management framework for the social (public) housing estates so as to maintain the continuity of inflow of the social, financial, and others accruable benefits/returns from it good existence and appearance in the built environment. The end product is not the created assets but appreciating the benefits or returns. As such, the present research excluded the developmental processes in provision of the social (public) housing estates in this study so as to allow consistency and in dependence in the collection of the required data stage. It also excluded more investigations of social housing estates in the global perspective since social housing estates technology and management transfer from one country on one side, to another on the other side, was not intended by this study. Additionally, the sustainability assessment toolkits' are excluded in the study with the intention that they should form the basis for further research opportunities, particularly in the actual testing of the study developed

frameworks' performance. However, the management of public housing estates has been in existence for many years in Nigeria and would have standardised the practice in public housing estates management where professionalism, carefulness, attention and policies support are directed to the context of the study.

1.6.2. Limitations

This research targets only the Federal and State housing authority as a unit of study in the Niger Delta. It sits on the premise that the totality of the social (public) housing estates are owned by both arms of government and managed through the in-house estate department staff of their authority. These are those actively involved in the post-construction management and in its peculiar associated problems. The decision was made to only seek participation from those actively involved in the post-construction management of the housing estates as to enhance the research aim of developing the appropriate SSPHEM framework for the authorities and practicing practitioners in the field of housing estates management in the Niger Delta of Nigeria. Therefore, this research adopted the single embedded unit of study which studies the authorities in the same manner, drawing the same group of representatives from the authorities (*see Tables 3.5 and 3.6 of Chapter 3, page 125 and 130*) that have active involvement in the social (public) housing estates post-construction management. From these groups of representatives, a surfeit of rich qualitative semi-structured interviews and quantitative questionnaire data were generated, but analysing this large data set requireed the application of appropriate data analysis techniques and approaches. Therefore, SPSS packages and techniques were used for the questionnaire data which provided plenty of Figures, Tables, numbers and graphs, while, the qualitative semi-structured interviews were analysed using the NviVo 10 packages.

1.6.3. Constraints

The rich data from both qualitative and quantitative approaches proved difficult for the researcher to actually distil into the findings of this study. However, it was demonstrated methodically, despite it seeming that the quantitative data obtained and analysed in this work is relatively extensive. Another major constraint faced in the study was the availability of time with each participant in the process of collection of the data. This was manifested more on making a second follow-up meeting where most actually failed or became difficult. This work was also constrained by the limited time of three years leave only being granted (including the writing-up years) by the sponsoring body and the researcher's employer. This made the data collection, analysis and writing-up to be as time conscious as possible providing more constraints to the work.

1.6.4. Reservations

This present research recognised doubts on the scarcity of literature regarding robustness within the area of sustainable housing estates management practice which manifested in the study drawing information with regards to robustness from other related subjects and areas such as project management and stakeholder management. Current publications of relevant materials and resources which would enhance the need for sturdiness has been published within the Nigerian government and the world domain on housing maintenance management, however, the likelihood that these resourceful materials could be biased was considered in this study even if the housing sector may be a political sector of the economy that governments and politicians use to score points and influence their governance and citizens welfare from the populace. Whatever the position is, the research exhibited a dispassionate strategy in a pragmatic approach to ensure and enhance that the degree of reliability, consistency and dependence is assured through properly validating and verifying all claims contained in the diverse sources. The study is focused on the various participating groups perspectives within and outside the Federal Housing Authority and State Housing Authority who are deeply involved in the after construction management of the housing estates. The researcher's point of view on the issues as a public/civil servant from and living in the case study area may sway the interpretation of such data. However, only accidental misinterpretation is tackled through the validation of the study findings using the developed framework by the participants groups to sustain the research reliability.

1.7. STRUCTURE OF THE THESIS

This thesis has been designed in a logical manner based on the objectives of this study which enable the reader to appreciate and comprehend the content and context of each chapter. At the same time, nine consecutive chapters have emerged in this work and each chapter is summarised as follows:

Chapter One introduces the overview of the study, including: the research problem; the research questions; aim; objectives; scope and limitations of the study; structure of the thesis; and research conceptual framework/map.

Chapter Two reveals a review of literature on related and relevant studies and resources on the areas of housing or building maintenance management approaches and associated issues, the estate management principles and methods in practices to housing estates, the relevance of stakeholders in the housing estates post-construction management and the sustainability

concepts and the essential beneficial post-project sustainability factors to social (public) housing estates management.

Chapter Three reviews the various research philosophies, the justification of choice of research rationale and methodology for the study. The pragmatic interpretative research philosophy paradigm was adopted in this study, which allowed both the qualitative and quantitative data collection instruments to be used. It equally introduces the various instruments of data collection and the process of analysing the generated data which involved SPSS 20 packages and NviVo 10 packages.

Chapter Four introduces the position of the Niger Delta in Nigeria, including the demography, environmental, economic, social and political situation. It also reveals the position of Nigeria in the World, Africa and West Africa regarding the economic, demography, politics, environment and social attributes. It further introduces a brief historical function and responsibilities of the Federal Housing Authority and the State Housing and Property Development Authority.

Chapter Five presents the analysis, findings and discussions of this research objectives 1 and 2, which determined the estate management principles and approaches and the maintenance management approaches utilised in the social (public) housing estates post-construction management practice in the Niger Delta of Nigeria. It also reveals the various barriers, drivers and their impression, in the post-construction management. It finally demonstrates that the current correlation of the appropriate estate management and maintenance management approaches are meagre for social (public) housing estates sustainability.

Chapter Six presents the analysis, findings and discussions of this research Objective 3, of identifying the underpinning concepts in stakeholders' management and the importance/relevance of their involvement/inclusion in social (public) housing estates post-construction management practice in the Niger Delta region of Nigeria. It further presents the relevant stakeholders, the reason for their non-involvement/inclusion and their impact in either deterring or improving social (public) housing estates post-construction management and the benefit sustainability. It also introduces that, at the moment, there is a feeble involvement of the relevant stakeholders in the estate management and maintenance management approaches utilised in the post-construction management of the social (public) housing estates.

Chapter Seven introduces the analysis, findings and discussions of addressing this research objective 4, which conceptualise sustainability in the context of social (public) housing estates and identify those beneficial sustainability factors for social (public) housing estates post-construction management practice in the Niger Delta region of Nigeria. It also reveal these factors impacts and their relevance/importance in order to sustainably post-construction manage the social (public) housing estates and improve the benefits sustainability therein.

Chapter Eight presents the analysis, findings and discussions of addressing this research objective 5, which emphasises on developing a conceptual framework that would be used for the sustainable management of social (public) housing estates after production in the Niger Delta region of Nigeria. It presents the developed operational framework, the processes followed in the development, the validation process and the step-by-step approach on how to use the operational framework.

Chapter Nine summarises the overall research findings in light of the study aim, objectives and questions identified in the introductory chapter of this present thesis. The chapter also considered: some recommendations; research generalisation; overall research conclusions; implications of the research exclusions, restriction, limitations, constraints and reservations; research concluding reflections; and possible suggestion for further study for this present work.

1.8. THE RESEARCH FRAMEWORK/ROADMAP

This present research study has five implementation phases as specified in Figure 1.2 overleaf. The five phases represent a chronologically simplified process for the completion of the research. Within and between phases there was the need for reiteration of elements as the cogency and clarity of the research focus evolved. Elements within phases frequently ran in parallel and consequently require some repetition of earlier elements. This was an important component of the research process, since the aim and objectives become more focussed and the researcher's skills and knowledge refined the coherency and consistency of the methodology approaches.

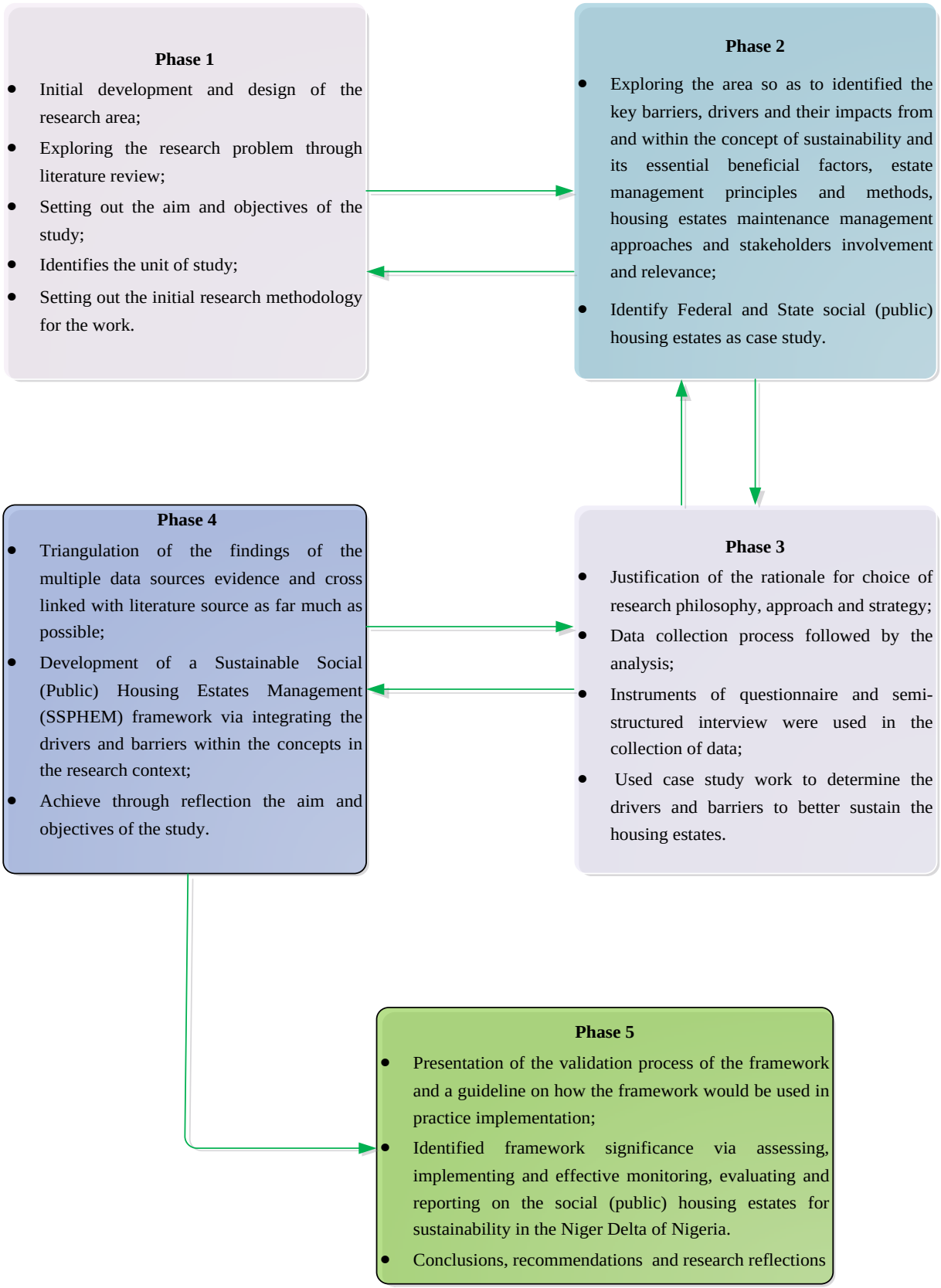

Figure 1.2: The Research Framework/Map

1.9. SUMMARY

This chapter has presented an overall structure of this research study (thesis) such that it includes an introduction and background which elicits the need for sustainable management of the housing estates since housing and all it features are one of the fundamental needs for human life and comfort in the built environment. It also presented such other concerns as: the statement of the problem; the questions the present work seeks to answer; the main aim and objectives of the research; the exclusions, reservations, limitations and constraints of the work; and to specify the precincts and context in which this research work is conducted.

The next chapter presents a comprehensive literature review of the concept of sustainability and the essential beneficial factors to sustain housing estates, social housing and the contextual definition for this study, housing maintenance management, estate management principles and methods and stakeholder relevance in social (public) housing estates management. These provided the basic underpinnings of the main research themes and their relevance and importance in the context, and which assisted to guide the selected methodological line of inquiry of the subsequent chapter (chapter three). However, as earlier mentioned, the chapter excludes the sustainability assessment toolkits which are predicted to be best studied during the operational testing of the developed frameworks' performance.

CHAPTER 2: LITERATURE REVIEW

2.1. INTRODUCTION

This section considers the review of recent and related studies on the concepts of sustainability/sustainable development and the successful sustainability factors for post-construction project management. It also examines areas such as: social (public) housing estate management approaches, principles and practice; what is sustainable housing estate management; and social (public) housing policies in Nigeria. Furthermore, housing estate maintenance management types; and the relevance of stakeholders to the sustainable management of social (public) housing estates is considered. Finally, it concludes by a summary of the findings from the literature review.

2.2. SUSTAINABLE DEVELOPMENT/SUSTAINABILITY CONCEPTUALISED

In developed and developing countries, urban and many rural areas are both faced with rapid urbanization and as a result there arises a series of environmental, socio-cultural and economic issues that need to be addressed. This problem emerges because of the continually increasing population, the consumption of the natural resources and the consequent generation of waste and pollution in the built environment. Therefore, the need to abate these issues raises much more concern that the concepts of sustainable development that emerged with the intent of providing solutions to the problems and challenges faced by the developing and developed countries in areas such as housing.

Sustainable development is conceived in different ways (Brandon and Lombardi, 2011; Edum-Fotwe and Price, 2009; Worika, 2002) and particularly in the context of: environmental issues (Bruntland, 1987); economic (Ding, 2008); social (Ding, 2008); political developments (Worika, 2002); and sustaining created assets benefits (Franks, 2006). This divergence depends on the interest (Worika, 2002); the assessment and evaluation strategy for sustainability (Brandon and Lombardi, 2011); as well as cultural variation, ideological preference, and the development purpose (Worika, 2002). As a result, there are today over 300 definitions of sustainable development published which represent the products of diverse world views and competing vested interests in the field (De Vries and Peterson, 2008; Kelly and Moles, 2000). Therefore, the question to ask is what meaning does it stand for and does the use in social housing estate sustainability differ from the goal of its general objectives? Also, what caused the sustainable development concept which has received a popular acceptance?

Franks (2006) asserted that in these circumstances it means anything the writer requires, but understanding what constitutes sustainable and unsustainable development is crucial in any project management and post-project management system. Rees (1998) in his study argued that it is largely a matter of subjective opinion and that which expresses public preference. Similarly, Boothroyd's (1991) study indicated that it is sustainable development if it reduces the disparities between the poor and the rich. However, the environmentalists, planners, surveyors and engineers argued that it is sustainable development when nature's ability to replenish is less challenged, while unsustainable development is when the nature's ability to replenish is more challenged. In addition, Porritt (2000) in Lutzkendorf and Lorenz (2005, p. 213) argues that for the achievement of sustainability, it is necessary to measure it against a set of four 'system conditions' such as:

- *''Finite material (including fossil fuels) should not be extracted at a faster rate than they can be re-deposited in the earth's crust;*
- *Artificial materials (including plastics) should not be produced at a faster rate than they can be broken down by natural processes;*
- *Biodiversity of the ecosystem should be maintained; whilst renewable resources should only be consumed at a slower rate than they can be naturally replenished;*
- *Human needs must be met in an equitable and efficient manner''.*

In contrast, however, Cooper and Jones (2008) in their study of social housing maintenance management argued that development will be sustainable when attention is given much more to such issues as: greater community engagement; deliberative forums to help people live more sustainable lifestyles; investigating ways in which stakeholders can influence decision-making; new commitment to support education and training in sustainable development; and responses to key environmental issues. Fundamentally, sustainable development tackles three major areas which ensure that: people living today are entitled to justice and equal rights; environmental degradation must be alleviated or eliminated; and future generations must not be impoverished as a result of current actions. More so, contributing to the debate, Moles and Kelly (2000) opined that sustainable development is not only being in a state of harmony; rather it should involve a process of change in which the exploitation of resources, the orientation of technological development, and institutional changes are made consistent with future as well as present needs.

However, the World Commission on Environment and Development (WCED 1987, p.8) defined sustainable development as development which ''*meets the needs of the present*

without compromising the ability of future generations to meet their own needs''. The Commission emphasised that addressing these problems requires global economic growth whilst recognising ecological constraints; and this was re-emphasised in Klunder's (2004) study. Abu Bakar *et. al.*, (2009) in adapting the commission definition of sustainability/sustainable development, opined that the commission not only considered that environmental problems needed to be addressed but also that the social and economic problems were equally significant to be tackled. For instance: inequality; property; non-prosperity; and the violation of human rights; are related to increasing population and the enormous expansion of environmental damage caused by human activities.

While the sustainability concept at first focused on environmental phenomenon, currently, it has gone beyond the boundaries of environmental issues to include a consideration of social, economic, political, and development issues (Brandon and Lombardi, 2011; Edum-Fotwe and Price, 2009; De Vries and Peterson, 2008). Brandon and Lombardi (2011, p. 21) contended that sustainable development is concerned with smoothing the progress of improvement without endangering what already exists. They define sustainable development as "*a process which aims to provide a physical, social and psychological environment in which the behaviour of human beings is harmoniously adjusted to address the integration with, and dependence upon, nature in order to improve, and not to impact adversely, on present or future generations*".

Similarly, Ding (2008) argued that sustainable development is a development concerned with attitudes and judgement to help ensure long-term ecological, social, and economic growth in society. This means that sustainability is related to the simple ideal of ensuring a better quality of life for everyone now and for generations to come (Gibbere, 2003). Hayles (2003) asserted that sustainability could be described in terms of social, economic and environmental states which are required in order for overall sustainability to be achieved. Looking in this perspective, sustainability may mean adapting the ways we all live and work towards meeting the needs while minimizing the impacts of consumption, providing for people of today and not endangering the generations of tomorrow (Worika, 2002).

From the contextual notions of the researchers as discussed above, it is clear that while the concept of sustainable development from literature is well known and widely used, it is also evident that there is no common understanding and approach for it. Hence, it clearly shows that all the researchers' views on sustainable development or sustainability centres around the definition given by the WCED and tailored to their perceptions of the goal/objectives targeted

to accomplish a particular endeavour. For instance, Zinkernagel (2001) cited in Abu baker, *et. al.*, (2009) contended that whenever it comes to what 'needs' are regarded as important: sustainability varies much more from nation to nation. In fact, it is different in: time; economic; social; and cultural backgrounds. Therefore, what constitutes sustainable development is very much more context-specific and the condition and practices may not be applicable everywhere. Hence, sustainability is seen as having its diverse implications in every corner of the world and in every sector of the economy (Bell and Morse, 2003). It is in this light that Lutzkendorf and Lorenz (2005, p. 213) argued that sustainable development is '*a journey towards a destination: 'sustainability'* and it is a '*triple-bottom line'* concept involving balancing economic and social development with environmental protection. Furthermore, Rydin (2003) contended that all the three dimension of sustainable development are equal but it is the environment that is the dominant dimension which sets the preconditions for the other dimensions. However, Lutzkendorf and Lorenz's (2005, p. 213) study identified three strategies for sustainable development as shown in Figure 2.1 below. They assert that sustainable development '*is a desirable model or overall concept for the process of economics, 'societies' and individual humans' development or evolution respectively'.* They went further to state that where the assessment of sustainable development in terms of the ability to meet current and future requirements as well as their capability of keeping current and future impacts, expenses and risks within certain limits are positive, then their products and services are expected to be sustainable.

For this research, the objective is to provide a housing estate management framework which seeks to sustain the products and services in the social housing estate so that the accruable benefits or returns from the housing estate are continually delivered to the respective stakeholders. This limits the work to the post-construction management of the social housing estate while ensuring the sustainability of the built environment.

2.2.1. Sustainable Development Dimensions and Principles

Sustainable development or sustainability as indicated in its definitions above is now classified into three dimensions namely: environmental sustainability, economic sustainability and social sustainability as shown in Figure 2.1 below. However, Pitts (2004) suggested in his study that the third dimension is the same as equity and therefore, the dimensions are environmental, economic and equity sustainability.

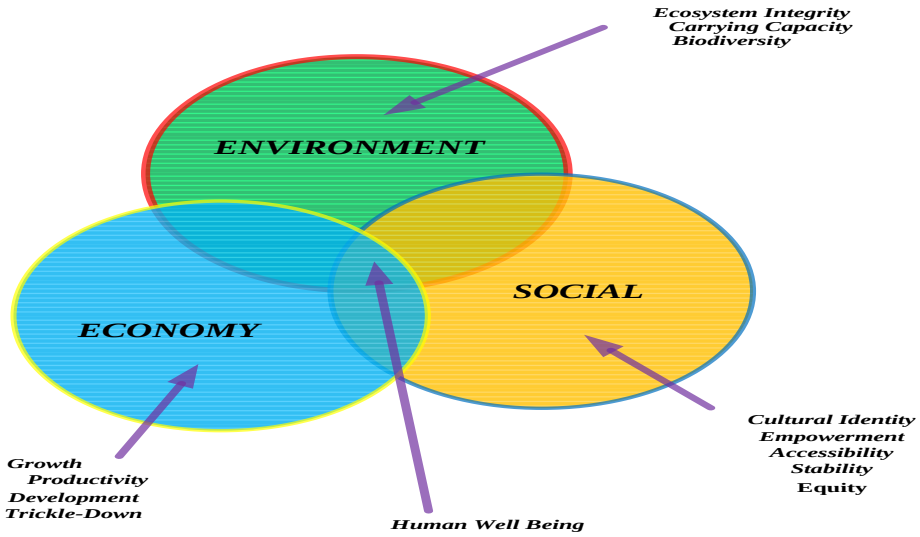

Figure 2.1- The Interactions of the Three Dimensions with Human Beings at the Centre of Intersection (Adapted from Edum-Fotwe and Price, 2009; Lutzkendorf and Lorenz's, 2005).

From figure 2.1, it is deduced that environmental sustainability looks to address issues such as: ecosystem integrity; carrying capacity; and biodiversity. While the economic sustainability takes account of areas related to: economic growth; economic development; economic productivity; and trickle-down in the economic system. Regarding social sustainability, it looks to address or take account of areas such as: cultural identity; empowerment; accessibility; stability; and equity in the social system. In Plessis's (1999) work the analysis suggested that the key element of sustainable development and management is in its ability to foster social cohesion and provide security for all who live in the built environment. From this, it would appear that there are certain factors: socially; economically; politically; and environmentally; that would greatly influence social cohesion and sustainability in a social (public) housing estate. As such, Plessis (1999) identified these factors as those of: policies; poverty; equity and ownership; quality of the environment; and access to infrastructure, facilities and services as pertinent to housing and its surrounding environment.

Poverty is one thing that is faced by both physical and social marginalization which brings about no or small opportunities for self-improvement within the built environment. Therefore, people may turn to crime as the survival strategy for life, growth and existence. However, whatever may be the causes of the poverty; it has remained one of the major stumbling blocks to sustainable development with its impact on the environment, the economy and society. At this time, it is an issue that needs a socio-economic measure to abate. The built environment could be a contributor to a reduction of poverty in the Niger Delta part of Nigeria. In most of

the Niger Delta, the urban cities have caused poverty traps that place the poor of the cities at risk; living at the expense of high transport fares, lack of access to health and educational facilities and other opportunities. In support of the above argument, Plessis (1999) stressed that living in a poorer environment, the people do not only have to muddle through with insufficient and not maintained infrastructure, high rates of crime and a bad quality environment, but also with the stigma created of living in this area often causes discrimination in opportunities that may be available to them.

Having considered the poverty issue, there could be three issues relating to both housing and health which have remained a valid issue for those low-income majority groups in developing countries. Hardoy *et. al.* (1990) identified as: firstly, the accommodation they live in is inadequate in protecting them from any health risk; secondly, because of this lack of income, the opportunity of obtaining better and adequate housing with all the necessary amenities becomes minimal; and thirdly, because of the above two scenario's, the fear of eviction becomes a worrisome syndrome to the people living within these areas.

In this instance, sustainable development is required which provides a new perspective in addressing and linking its implications to ecological damage. Therefore, in a way to give an explicit understanding to the issue, WCED (1987) stress that poverty is not only an evil in itself, but sustainable development requires meeting the basic needs of all and extending to all the opportunities to fulfil their aspirations for a better living. They further stress that a world in which poverty is endemic will always be prone to ecological and other catastrophic issues.

Equity and Ownership which in itself is the right to own and possess a property is the one which addresses the principles of equity and self-determination that underpins sustainable development. It equally fosters territoriality, influences crime patterns and the willingness of people to intervene in a potential crime scenario. Relating to housing, Newman (1972) stressed that territoriality is a key principle to fight against crime through environmental design. He further stated that adopting building forms which avoid the stigma of peculiarity allows others to perceive the vulnerability and isolation of the inhabitants in an area, and the enhancement of safety by locating residential buildings in functionally sympathetic urban areas which must be adjacent to activities that do not provide continued threats to the inhabitants.

Quality of the environment affects negatively or positively one's quality of life; and this could vary because of certain factors like water and air pollution, lack of sanitary facilities/systems,

housing overcrowding and low building quality. Therefore, people within this scenario are less likely to feel pride and belonging to that particular environment (Plessis, 1999).

Access to infrastructure, facilities and services for the people of the poorer groups are excluded from opportunities such as educational facilities etc. because of their geographical location which is far from the urban centres.

In urban areas, the poorer majority groups are in a more tricky position to move to the cities to take the employment opportunities because of their educational background and technical knowhow limitations as a result of no educational facilities available to them. They live in built environments which are unhealthy and with bad sanitary condition and also with lack of clinics, hospitals, and transportation system. They also lack recreational facilities and day care facilities. Such a lack of access to these facilities at one point in time or another becomes a necessity to the urban poor. However, one of the major purposes and pursuit of sustainability is to promote the provision of facilities close to residential areas which in both the short and long run would go a long way to abating the problems. Towers (2005) cited in Ndubueze (2009) and Ihuah, *et.al.,* (2014) stressed that it is an essential connection of any social housing development and management that its residents have easy and good access to a variety of neighbourhood facilities which should include open spaces, meeting places, education and health services, shops providing goods and a good transportation system network. In regard to this, a sustainable housing estate community development and management policy is one that seeks to address issues such as: to protect and enhance the environment through: energy; water; and other natural resources being efficiently used with care; minimizing waste; and reuse or recovery through recycling, composting, or energy recovery; and finally sustainably dispose of what is left; limiting pollution to levels that do not damage natural systems; and valuing and protecting the diversity of nature. To meet social needs, it tries to achieve them through**:** creating enhanced places, spaces, and buildings that work well, wear well, and look well; make settlements that are human in scale or form; valuing and protecting diversity and local individuality and strengthening local community and cultural identity; protecting human health and amenity through safe, clean, pleasant environments; emphasizing health service prevention actions as well as cures; ensuring access to good food, water, housing, and fuel at reasonable cost; ensuring every individual is meeting local needs locally wherever possible; maximizing or eradicating everyone's access difficulties to the skills and knowledge needed to play a full part in society; and empowering and involving all sections of the community to

participate in decision making; and to consider the social and community impacts of necessary decisions.

The promotion of economic success provides opportunities such as: creating a vibrant local economy that gives access to satisfying and rewarding work without damaging the local, national, or global environment; valuing unpaid work; encouraging necessary access to facilities, services, goods, and other people in ways that make less use of the car and minimizes impacts on the environment; making opportunities for culture, leisure, and recreation readily available to them (Department of Environment, Transport and the Regions (DETR),1998; in Agyeman & Evans, 2003). In another consideration, Hoskara's (1997) work in a comprehensive analysis of sustainable urban design principles, stressed by summarising as follows: that by increasing local self-sufficiency at each level, the designer should attempt to maximize the level of autonomy of the eco-system using nesting spheres of influence (that is, to reduce the impact of the inner spheres on the outer spheres); that by the satisfaction of the human needs such issues as: providing energy efficient housing; improving the quality of local environment; creating an attractive, safe and well-supervised urban environment with social stability and sense of community will be resolved.

By a structured development with energy efficient movement networks, the travelling objectives and choices for all groups in society can improve, as well as giving all development projects not having good access to public transport, would be addressed.

Providing an open space network helps to serve a number of inter-related purposes concerning managing pollution, wildlife, energy, water, sewage and green space in the neighbourhood. Oktay and Hoskara (2003) identified from the report of Caring for the Earth (1980) that certain sets of principles were to be met if sustainable community, for instance good social housing estate community, is to be achieved and such includes: respect and care for the community of life; improve the quality of human life; conserve the earth′s vitality and diversity; minimize the depletion of non-renewable resources; keep within the earth's carrying capacity; change personal attitudes and practices; enable communities to care for their own environments; provide a national framework for integrating environment and conservation; and create a global alliance.

Social (public) housing estate projects once sustainability is agreed and implemented, should be able to develop a strategy to determine the level of progress, so far made, in line with the

principles of sustainability. Sometimes it may be difficult but the truth is that it is essential; otherwise it is not possible to ascertain whether the development had made an improvement based on the objectives of the housing estate. This set of principles or strategies for performance measurement of the social housing estate will help to analyse the relevant issues before justifying any decision that might be made, now or in the future, for that development. Similarly, it is asserted that any assessment and performance strategy adopted which is easy to understand and implement will not be able to produce the right outcomes for a development (Brandon and Lombardi, 2011). As such, a distinction between measurement and assessment becomes imperative at this stage. Assessment is the evaluation of a developments performance against a set of criteria; whilst measurement is the identification of variables related to sustainable development and the deployment of technically appropriate data collection and data analysis approaches (Brandon and Lombardi, 2011). Also, performance and the criteria are both value-laden definitions and not easily verifiably empirically. Therefore, performance is related to goal oriented behaviour which is only caused to be meaningful by the existence of a criterion specifying when a goal is accomplished (Brandon and Lombardi, 2011); but a good and excellent assessment can only be attained publicly if the value system fundamental to performance and criteria is mutual to both experts and the public (Francescato, 1999; in Brandon and Lombardi, 2011). Consequently, for any sustainability or sustainable development assessment to provide a maximum benefit of use in a development in the built environment, the following fundamental principles are necessary to be considered. This includes; *'Holistic'* which entails incorporating all the aspects needed to attain sustainable development in the built environment. *'Harmonious'; providing* an enabling environment for the balancing or used for the balancing of the criteria upon which sustainable development/sustainability ought to be measured.

However, for this study, it is not intended to study the assessment and evaluation toolkits available for determining sustainability, but the discussion above is to draw more highlights on some relevant areas of interest to consider for further research work, if sustainable social housing estate performance is to be measured. At the moment, the present research study covers only the post-construction management issues that can permit social (public) housing estates to be managed sustainably in the Niger Delta of Nigeria. Therefore, the next section discusses the emergence of sustainability.

2.2.2. Materialisation of Sustainable Development Concepts

The sustainable development concept starts emerging in the second half of the 1970s because of the economic dichotomy with balance of payment issues resulting from the sudden rise in oil prices, characterised by the general weakness in the economic system mostly in African countries (Franks, 2006; Cusworth and Franks, 1993). There was also a general reduction in the standard of living in the entire economy and severe impacts on the development of projects, and the wider policy-making and planning in the environment (Ihuah, 2007; Franks, 2006). Therefore, in 1972, a conference on the Human Environment was held in Stockholm, Sweden, which was attended by 113 states/countries and with representatives from 19 international organisations. This marked the first ever international conference devoted exclusively to addressing environmental problems with a global strategy. At the conference, 27 experts where able to articulate the relationships between the environment and development indicating that though individual preferences and conflicts exist on the issue they are intrinsically two sides of the same coin (Vogler, 2007). Also, at the conference, the United Nations Environmental Program (UNEP) was created with the mission to provide leadership and encourage partnership, caring for the environment through inspiration, information and enablement. These fostered among nations and people, the desire to improve their quality of life without compromising the ability of the future generations to meet their own quality of life needs. However, the conferences effectiveness was limited because of environmental protection and development needs, particularly in the third world, where it was seen as competing needs, and would need to be dealt with in a separate, clumsy fashioned manner. The more worrisome feature was to recognize the trade-off between environment and development rather than promoting harmonious linkages between the environment and development (Prizzia, 2007). It was clear that a more integrated perspective that incorporated both the environment and economic development issues was indispensable. Therefore, in 1983, the United Nations general assembly created the World Commission on Environment and Development (WCED) which later was named after the chairman of the commission '*The Bruntland Commission'*. Thereafter, in 1987, the commission published their first report entitled '*Our Common Future';* which provided the most significant and generally accepted definition of sustainable development (Vogler, 2007). However, Daly and Cobb (1989) and Timberlake (1989) asserted that the Bruntland Commission's definition of sustainable development was both optimistic and vague; having a purposeful and politically astute component which generated debate of the full spectrum of possible interpretations, and that the claim that we can have economic growth without damaging the environment was a sheer statement of opinion. Nonetheless, Bartlett (2006) asserted that the Commission itself

suggested that for the definition to be accepted, the discussion had to be optimistic. Bartlett (2006) therefore further argued that it was necessary to be vague and contradictory as not to appear to be pessimistic. However, in whatever ways the Bruntland's definition of sustainable development is examined, it remains the hallmark for the concurrent understanding, acceptability, and application of sustainable development or sustainability concepts in the world today.

2.2.3. Essential Sustainability Factors to Social (Public) Housing Estates Project

The sustainability or sustainable development factors to either environmental, economic or social development projects including social (public) housing estate projects are contested on: policy factors; institutional (organisational) factors; socio-cultural (community and social aspects) factors; environmental factors; technological factors; financial/economic factors; and monitoring, evaluation and reporting factors (Brandon and Lombardi, 2011; Harvey and Reed, 2004; Mukherjee and Van Wijk, 2002; Parry-Jones *et. al.*, 2001). In a critical assessment, it is argued that, the concept of sustainability measurement and understanding has become a multi-dimensional challenge to its applications (Mukherjee, 1999). However, strategies have evolved to prove the sustainability factors of system projects, which assist to viewing issues in a bigger picture for decision-making, although their connections and relationships are not clearly identified (Harvey and Reed, 2004). Therefore, their contentions are multi-divergent and multi-convergent depending on the perspective to the conceptualisation (Parry-Jones *et. al.*, 2001).

Similarly, Harvey and Reed (2004) and Schoolkate (1992) argued that, sustainability factors for projects ought to be discussed in relation to the: policy environment; perceptions and attitudes; skills and institutions; and selection of appropriate technology. However, these variables critically match with the essential sustainability factors indicated above, hence the review of the sustainability factors to social (public) housing estate management would be under the: policies factors; institutional factors; external estate community and social aspects factors; technological factors; environmental factors; financial/economic factors; and monitoring, evaluation and reporting factors. Within these factors and in the context of this research, issues such as: lack of technical know-how; insufficient capacity building; lack of education, information, awareness, participation, involvement, decentralisation, and communication; and lack of monitoring, evaluation and reporting strategy (Franks, 2006; El-Gohary *et. al.*, 2006) emerge as sub-factors within the various factor categories.

2.2.3.1. Policy Support Factors

The policy factors in the context of social housing sustainability is considered from two perspectives, that is, policy and organisational structures both within and outside the project environment being supportive of social housing stock management. The policies, its development and implementation are essential to a projects sustainability's to which social housing projects are not an exception. Social housing policy development within the context of developing countries is still new, although South Africa is on its way to producing a social housing management policy for sustainability. A quicker approach was used in Nigeria, which currently has included social housing provision in the 2011 Nigerian National Housing Policy (FMLHUD, 2012).

Most African countries; and in particular Nigeria, have developed policies relating to social (public) housing estates, focusing on the best approaches for social housing provision in terms of the technology and service provisions; financing, tariffs and subsidies; management and sustainable elements of the problem; community, voluntary and private sector involvement and participation; and the co-ordination and partnerships towards eliminating the issues (FMLHUD, 2012; Parry *et. al.*, 2001). However, the development or improvement of a social housing policy in a country is not a function of the sustainability of the social housing estates but, it is a fundamental basis for all sectors to focus on making social housing estates available and affordable to the less privileged in the country (FMLHUD, 2012). This has led to the significant interest of the Federal, State and Local government in active social housing provision and services delivery in Nigeria. However, no significant level of achievement is evidenced in the Niger Delta, and that warranted Ebie (2012) to stress that social housing estates provision and management in the Niger Delta remains vitally imperative.

Contrastingly, where there are no policies developed in relation to social housing estates management in a country, particularly for the rural communities, every sector and stakeholder will see the issues differently, deploying different execution and management strategies, and different social housing technologies; that will all cause disintegration and unsustainable housing as demonstrated in the Niger Delta. In these circumstances, it is argued that the level of politics and its dynamic nature in a country is a core issue of sustainability particularly pertinent in relation to social housing estate provision and post-construction management. The political system of the country must have a total commitment to providing an encouraging atmosphere for the development of social housing estates; otherwise the possibility of not meeting the social housing demand and the objectives is highly visible. However, it is

necessary to understand that policy formulation is multi-dimensional and dynamic in nature, by which the stakeholders supporting the social (public) housing estates and it technologies, must be ready, to achieve the successful implementation of the projects. Furthermore, there must be institutions and personnel to drive policy implementation; stakeholders that adhere to policy and strategy guidelines; a consistent regulatory and legislative framework; and adequate financial resources (Ebie, 2012; ADB, 2005; Harvey and Reed, 2004; Kennedy, 1997).

2.2.3.2. Institutions/ Organisational Arrangements Factors

Sustainability of social (public) housing estates is dependent on the institutional and organisational set-up, particularly the maintenance strategies/practices put in place that will guarantee the social and financial returns over the expected social housing estate life- cycle (Ihuah and Kakulu, 2014). According to the 2012 Nigerian National Housing policy, the institutional framework forms the structure of the entire housing delivery system and the structure within which housing policy is implemented. This greatly influences the success of social housing estate delivery and management and that institutional roles should begin at the initialisation stage of the policy development, and be sustained throughout the implementation, coordination, monitoring and evaluation and review stages. From the former and later statements, it is clear that the post-construction management strategies of social housing estates are not yet developed. Parry-Jones, *et*. al. (2001), Mudege (1993) and Morgan (1993) stressed that no project development including social (public) housing estate projects should be implemented in any particular environment without a strategic approach for the post-construction management. This is the management culture practices which keeps the social projects functional, and remains much more significant than the actual housing estate construction management. Therefore, in the context of social housing estates post-construction management, management at the lowest appropriate level is important, and the role of the Federal, State and Local government in partnering with each other is imperative for sustainable social housing estates management. Also, considering that decentralisation is a new concept for the African continent and it is a system that is mostly enshrined in a good governance concept. Social housing management or service delivery ought to be outside the jurisdiction or control of local government and the private sectors as they lack the most required resources to satisfy this function within society (Parry-Jones *et. al*., 2001; Sohail, 2001). At the same time, the lack of commitment, instability, capacity gaps and lack of co-operation and the merging and de-merging amongst the different departments of the government such as in Nigeria (FMLHUD, 2012; WELL, 2001) has led to discontinuity,

conflicts and corruption practices in social housing service delivery (Ezeani, 2005). Therefore, for social housing stock sustainability, the need to support and build capacity in all aspects even for the local government to support and provide the environment for effective and efficient social housing management in rural and urban environment is significant. In the Niger Delta of Nigeria, the Federal and State Government have failed to render the necessary services of providing social housing to citizens. This has therefore required facilitating the initiatives of the private sector and non- governmental organisations (NGOs) to participate and involve themselves in social housing estate delivery and post-construction management to the rural community directly (Parry-Jones et. al., 2001; Frolich, 1999). This is to promote a meaningful level of achievement so as to abate the social housing estate deficit challenges. Despite this, the problems still boil down to the Federal and State Government to provide and manage the social housing estates since the instruments for the housing estates delivery and post-construction management are weak. However, some of the private sector and NGOs are still concerned with the manufacturing and supply of building materials, installation, training and certain maintenance activities within the social housing estate sector. According to the FMLHUD (2012, p.86) report, the private sector is defined as;

‘‘*those organisations (banking and non-banking financial intermediaries, industrial and commercial organisations) or individuals committing their resources to satisfy housing need of this country with a view to making profit in accordance with laid down policies and regulations”*.

But no research evidence which outlined the level, approaches and mechanisms of their participation/involvement in social housing sustainable management was found by the researcher. Although, in the Nigerian National Housing Policy (2012), it states that if the private sector is to effectively participate in social housing provision, the government shall grant some form of allowances and relief on residential buildings and provide tax exemptions on mortgage loans. This may imply that the level of participation is only limited to those social housing estate projects exclusively undertaken by them and not the ones in co-operation with the government. This would agree with the assertion that most of the government owned social housing estate projects have been undertaken without any involvement of the private sector, NGOs and without any community participation from the on-set of the planning and design phases of the project, and which therefore never become sustainable to the community (Barrett and Shahidullah, 1992). Consequently, Anand (2007) argued that it is the Federal Government that has the main role of setting the policy and institutional framework which

other sectors should follow through participatory democracy by the citizens; and that sustainability of social (public) housing estates through good governance is a major priority in any economy.

2.2.3.3. Technological Factors

The United Nations Development Programme (UNDP) and the World Bank (WB) initiatives in the 1970s on global/interregional project laboratory testing and technological development substantiated the fact that technology might no longer be a limiting issue to project sustenance in the rural community (Parry-Jones *et. al*., 2001). But this notion appears deficient, as most projects failures are associated with a lack of available materials, the poor quality of the materials, and the unplanned maintenance design management (Fonseka and Baumann, 1994).

The technological factors relate to the: building materials availability; local manufacturing capabilities; planned preventive maintenance; housing estate usage; durability; technological transfer; and the uncontrolled rising costs of building materials; (FMLHUD, 2012). In the FMLHUD (2012. p.63) housing policy, it states that '*the building materials sub-sector is intricately connected to the process of national industrial development; and the improvement of local capacities is one major way to stem the overdependence on the importation of building materials'.* In social housing development and post-construction management, the most frequent problems are increased construction and labour costs resulting from: increased import duties; lack of consistency of policy formulation and implementation; over-priced contract; over-priced cost of construction; shortages of skilled manpower; and the absence of indigenous technology for the production of building materials (FMLHUD, 2012). Local manufacturing of building materials, particularly in Nigeria, is limited. Such that where available, the quantity, quality and durability of these materials, often poorly manufactured is so constrained to the extent that its use becomes risky to housing provisions. Nevertheless, quality specifications can be put in place and monitored for compliance within the building material production sector as indicated in the Nigerian National Housing Policy, but it is still in its infancy. Despite the flaws, some of the locally manufactured building materials are more costly in certain African countries (for example-Nigeria-Port Harcourt) than the imported ones from the country of production. From this perspective, the provision of social housing estates stock materials and post-construction management will be retard as most projects could not afford to pay in advance for the building materials stock, but Parry-Jones *et. al.* (2001) opined that better sustenance of projects and the related local benefits can still

be achieved when the materials are purchased offshore and delivered through local participation.

On the matter of availability of building materials as it relates to social housing estate project sustenance, the problems of inadequate and insufficient infrastructural facilities such as: bad roads, water, sanitation; and power supply remain a serious problem. This is because the quality, availability, procurement and supply of these infrastructures are challenging, and at most times, the project developers fail to consider the future consequences of these factors to the project sustenance. Baumann (1994) contended that the purchase of materials for a project (including housing estate projects) should be made to be economically feasible and viable. The locally manufactured materials should have a strong linkage to the community market for better contact with the beneficiaries of the project (FMLHUD, 2012; Woodhouse, 1999); and the willingness of the stakeholders to procure the materials should be encouraged (Breslin, 2001). This should be through providing incentives to, and creating, the enabling environment for flow of funds and tax relief, loans at reduced interest rate and encouraging the use of the locally produced material at all tiers of government constructions (FMLHUD, 2012).

Another encouraging step should be to restructure and adequately fund the Nigerian Building and Road Research Institute and the establishment of building materials testing laboratories by either the government or the private sector. Technology transfer in terms of building material production and high maintenance skills is gaining a certain momentum, but a lot more is needed in this aspect. This would afford long-term production and knowledge accumulation that can be transferred to countries of similar environmental, political, social and economic status (Parry-Jones *et. al.*, 2001; Alberts *et. al.*, 1993). However, the level of this technology transfer is something to which attention must be given if the expertise to be transferred matches the desire of the community or intended development. One way of addressing this is by developing effective manpower training programmes to raise the output of the building industries through: providing, restricting and expanding vocational training centres for the training of personnel; and to provide and upgrade structured training for indigenous contractors and developers through short-term programmes in project management, construction management and building methods (FMLHUD, 2012).

2.2.3.4. Environmental Factors

The sustainability of social (public) housing estates post-construction in the context of the environment, relates to thing such as the: quality and condition of the social housing estate environment; housing estate design in terms of ventilation, lighting, and building

morphology; energy consumption issues; building design; natural topography of the land; and how the housing estate compacts with the natural land for preservation and optimisation (Ibem and Azuh, 2011; Ihuah and Kakulu, 2014). Another unavoidable issue is weather conditions such that it is often responsible for chemical reaction of building materials and other components of the housing estate. For instance, the atmospheric pollution associated with acid rain, causes rapid deterioration of some housing materials (Patton, 1988), and the use of such material again in maintenance work will have an impact on the short-term failure of the housing estate condition.

All of these issues require a specialised and well-experienced maintenance contractor to perform the housing estate maintenance work and management effectively. A good maintenance contractor as opined by Al-Hazmi (1995) is cherished with the quality of being a confirmed performer, understands and knows the cost implications and what can or cannot be done in any particular scenario, realising that regulations are built upon past performance.

Even where these issues are considered, the quality of the neighbourhood or estate community environment may be poorly habitable, the social housing estate community may not appreciate the estate since the immediate environmental conditions discriminates with the community environment. This may suffice to suggest that aesthetic issues of the social housing estate neighbourhood environment are overlooked. Carter *et. al.* (1996) argued that the engineers, planners, environmentalists and decision-makers always underestimate these aesthetic issues which may become a basis for rejection or non-appreciation by the housing estate community, because of the lack of integrating community participation and involvement in the project from the beginning of the design process through project decision-making and into post-construction management.

2.2.3.5. External Estate Community Social Perception Factors

Attempts to conceptualise what a community is in relation to a project has posed many difficulties, discrepancies and ambiguities such that no clear distinction is made about the concept of community. However, engineers perceived a community as a homogenous group of people with like-minds, but this is not always the case as it is always difficult to produce collective community leaders who will maintain the project (Waterkeyn, 1993). Nonetheless, the WHO (1999) defined a community as that made of the people and environment contained as a local, political and administrative cadre. This implies that communities are characterised based on demographic, cultural, social, economic, environmental and infrastructure features as summarised in Table 2.1 below:

Table 2.1 Characteristics of a Community

Demography	*Culture*	*Economy*	*Environment*	*Infrastructure*
Population and age distribution Mobility Useful skill Health Education level Male/Female Distribution	Traditions Ethnicity Social values Religions Food Types, Eating Habits Power structures	Trade Agriculture Investments Industries Wealth	Landforms Geology Waterways Climate Flora Fauna	Communication Transportation Services Community assets Government structures Resource base

Sources: WHO (1999).

In the context above, Parry-Jones *et. al.* (2001) defined a community as group of individuals that come together when they have a common need. From this, it means that the expression of need is central and paramount to sustainable social housing estate projects, such that people can only agree, volunteer, support, involve and participate in a project when the objectives and benefits are clearly identified and made known to them (WSP, 2000b; Cleaver, 1991). However, a community is not an island: social migration; communication; and urban movement; bring social flux which is a poor basis for progress in the development process (Abrams, 1998). Because of the multi-dimensional and changing habits of a community, they must not be underrated in the processes of project implementation and post-construction management.

Community and its social aspects in terms of need and priorities have become the commonest factors why many social-community projects fail or are unable to deliver the benefits intended (Ihuah and Kakulu, 2014). This is because of their belief in the use of their natural resources such as land and can easily make a U-Turn, ensuring the failure of the project by looting the materials at building or maintenance sites. This is the commonest case of project failure, vandalisation and abandonment as opined by Kadiri, (2004) and particularly in the Niger Delta of Nigeria where most of the area is inhabited by unemployed youths and the associated poverty. As a result, maintenance issues do not become a part of the priorities. Another community factor for social housing failure is the acceptance of the so-called appropriate technology by the community and a problem of community project sustenance occurs when the operation of the social housing estate as designed runs contrary to their traditional housing culture or expectations.

Furthermore, gender diversity, which is on the global agenda, affects social housing estate provision, and a project requires the involvement of all community groups irrespective of

their gender in the decision-making and management of the system (El-Gohary *et. al.*, 2006). But, Hoffman (1992) has found that there is still gender discrimination in project post-construction management, for instance, female input or efforts were not rewarded while the males were rewarded for the same service rendered. Also, Cleaver's (1991) study in Zambia confirmed that while women were members of project committees, all the tasks were performed only by men. The implication here is that women should be allowed to fully participate with equal opportunity like every other group in the community.

Also, village level power structures and dichotomies are another problem to the community sustaining social housing estate projects. It is required that every community set-up their own management committee to look after the ongoing operation and maintenance of their project (Parry-Jones *et. al.*, 2001). Cleaver's (1991) study in Zambia suggested that a new committee set-up is not the case, rather the existing community leaders and at most times the traditional rulers influence the decision-making of the community. Also, UNICEF report that in Nigeria (WELL, 2001) on rural water programmes for example, that the most active group in project and post-construction maintenance management is the Community Development Committee (CDC) that was democratically selected by the community themselves. Whatever the case, the community should be encouraged to build up their own management structure as suggested by Breslin (2001).

Finally, another issue of the community and social aspects is that of ownership. Parry-Jones *et. al.*, (2001) and Cleaver (1991) emphasised that one of the main requirements of community participation in project decision-making and implementation is to stimulate a sense of ownership, which increases the level of maintenance to projects. However, in Zimbabwe for example, the case was different as the community felt that their contribution to the project implementation and post-construction management were a sell-off of their rights to ownership (Parry-Jones *et. al.*, 2001). When the ownership type is limited such that the rights an individual has in the social housing estate, is as a leasehold owner, the resources and other activities of the commitment to keep the property in proper conditions become rarely feasible.

2.2.3.6. Economic/Financial Factors

In the context of social housing estates and the post-construction management, the economic/ financial factors should aim for the maximisation of the capital value of the construction and minimisation of the post-construction management so as to enhance issues such as: its affordability to the citizens; the tenure options; the aptness of the social housing estate acquisition process; the conformance of the housing estate design to future uses and needs;

and the creation of opportunities like jobs in the built environment. This allows the researcher to deduce that the post-construction management of social housing estates will involve huge capital sums and that the understanding and ability to reduce these costs will strengthen the affordability of housing to the people. This might concur with Harvey and Reed (2004), Parry-Jones *et. al*. (2001), Woodhouse (1999), and Sarkinnen (1994) who all opine that, since the capital costs of projects such as, housing, are huge and the community or individual cannot afford it, the total responsibility should be left for the government, donors or NGOs. However, Parry-Jones *et. al.* (2001) argued that even though such concerns should be carried by the project financier, the social housing estate community, the tenants and the professionals must prove commitment either in-cash or in-kind for the management to be in a sustainable manner. It is through this commitment that housing estate community and all other stakeholders for the sustainable management could have involvement in both the social housing estate design and the organisational capacity to sustain them. However, an evaluation of a UNCDF project in Guinea Bissau (1996) indicated that the failure, for example of hand pump water projects to sustain the proposed accruable benefits, was the failure to develop an appropriate strategy for operation and maintenance (O&M) cost recovery at the community level which then undermines the project sustenance. Therefore, understanding the true costs of the operation and maintenance of social housing estate projects is of importance, but the project owners, planners and decision-makers always seem to neglect this aspect, though little documentation exists (Parry-Jones *et. al.*, 2001). However, the costs of operation and maintenance of social housing estates are generally vast, but if a planned preventive maintenance management strategy of the social housing estate is made through the budget at the onset of the housing delivery, then less cost would be incurred in post-construction management of the social housing estate.

2.2.3.7. Monitoring, Evaluation and Reporting Factors

Post-construction management monitoring, evaluation and reporting is a critical factor for tracking the performance of the project to see if the progress is towards achieving the targeted returns or benefits (Ihuah and Kakulu, 2014). According to the Nigerian National Housing Policy (FMLHUD, 2012), monitoring, evaluation and reporting are an integrated process and demands that coordination action by stakeholders in both the public and private sector of the economy is vital in the housing delivery and management.

The 2012 Nigeria National Housing Policy (NNHP) has contended that a lack of monitoring, evaluation and reporting on the various coordinated and integrated efforts of housing delivery

and post-construction management are the bane of the housing estate conditions. The availability of such monitoring and evaluation reports is still in almost total deficit.

However, the UN-HABITAT Agenda 21 (1992) requires that this participatory approach involves and includes directly or indirectly all stakeholders in the design, implementation, monitoring, evaluating and reporting on project development and post-construction management. At the same time, the NNHP report of 2012 suggested that the mechanisms and institutions for implementing, coordinating, monitoring, evaluating and reporting should be strengthened, so as to ensure progress and tracking of the implementation of the housing policy. Therefore, the issue of ensuring that social housing estate management is: monitored; evaluated; and reported; on the management style, conditions of the housing estate and the built environment cannot be overemphasised as it remains the mortar to social (public) housing estate returns or benefits achievement.

2.2.4. Sustainable Social (Public) Housing Estate Management Conceptualisation and Definition

Housing is not only the building block of sustainable communities, it is also about the transformation of communities and creating places where people can continually live and work for present and future generations (Kabir and Bustani, 2012). It is the building or shelter in which people live; and represents one of the most basic human needs with profound impact on: health; social behaviour; satisfaction; efficiency; and general welfare of the community (Kadiri, 2004).

However, housing in the context of this research is restricted to social (public) housing estates. It is housing estates built and managed by the Federal and State governments for the interest and benefit of all that have a stake, particularly low-income groups in the country.

Lutzkendorf and Lorenz (2005, p. 214) asserted that to classify sustainable social housing estates, it is possible to start with the general area of protection, which is part of the three dimensions of sustainable development and as such includes: *Protection of the natural environment; protection of the basic natural resources; protection of human health and well-being; protection of social values and of public goods; and protection and preservation of capital and material goods.* Moreover, Lutzkendorf and Lorenz's (2005) study concluded that the following should be the basis of such a classification: minimization of life cycle costs; reduction of land use and use of hard surfaces; reduction of raw materials; and the closing of material flows. They would equally consider: avoidance of hazardous substances; reduction of

CO_2 emissions and other pollutants; reduction of impacts on the environment; protection of health and comfort of social (public) housing estate occupants; and preservation of public housing estates' cultural values. The above requirements can be aligned to the economic, social and environmental requirements for achieving sustainable development of social (public) housing estate management. Similarly, Brandon and Lombardi (2011) stressed that for housing to be sustainable; its ecological footprint should closely match or be smaller than its physical footprint. They stated further that sustainability can be achieved through using the minimum of resources which are obtainable locally and also by minimising the amount of resulting pollution and waste to a level capable of being disposed of safely within the confines of the built environment.

In sustainable social (public) housing, several various definitions exist; the EU defined sustainable social housing in terms relative to quality of construction, social and economic factors as regards to affordability and psychological impacts, and eco-efficiency such as efficient use of non-renewable resources in the built environment (VROM, 2005). But, sustainable management of social (public) housing estates should provide comfort, be cheap to maintain and harmonizes its exclusive environment. In addition, sustainable social housing estates should have a housing estate management practice, which strives for integral quality such as including: social; economic; and environmental preferences in a broad way. As a result, Cooper and Jones (2008) stressed that there is a need to incorporate the principles of sustainability if a social housing estate is to provide a good standard of living. Applying the sustainable development concept to social housing estate management, distinctions need to be made between serviceable and ecological sustainability. For social (public) housing estate management sustainability, the issue of natural resource depletion is not normally a key factor, rather functional and serviceable sustainability is a priority or much more relevant and important. In this context, the concept of sustainable development is applicable to social housing estates since serviceability and functionality are integral parts of housing and contribute to the sustainable management of social housing estates (Lutzkendorf and Lorenz, 2005).

In conceptualising from the definitions such as those given by: Cooper and Jones (2008); Rhodes (2008); Banfield (2005); Lutzkendorf and Lorenz (2005); Frej and Pesier (2003); and Priemus, *et al* (1999); Stapleton (1994); RICS (1974); and Thorncroft (1965). Sustainable Social (Public) Housing Estate Management (SSPHEM) as contextualised by the researcher in the context of this research is defined as:

'*the process of direction, coordinating, planning, forecasting, supervising, communicating and monitoring, evaluating and reporting on an interest subsisting in social housing estates with the purpose of securing continuous benefits or returns; these benefits could either be social, economic, financial, political, and or other groups of benefits, which do not compromise with the ability of the future possessors or inhabitants of the social housing estate units to meet their own benefits; and should be cheap, safe, accessible, comfortable and allow for all the relevant stakeholders involvement'*.

This means that the management style to adopt would be first to merge together sustainability factors, with: an appropriate maintenance management method; an appropriate estate management approach; and stakeholders inclusion; for the social (public) housing estate. Thereafter, a good management style of directing, supervising, monitoring, evaluation and reporting, etc., on the integrated subsets are constantly maintained as every housing estate usually presents very unique characteristics even when located within the same vicinity. It should also present minimal cost of management, and the inclusion and involvement of all stakeholders.

2.3. SOCIAL HOUSING DEFINITION AND PRODUCTION IN THE NIGER DELTA AND NIGERIA

Social (public) housing estate development in Nigeria could be traced to the development known as Festac Town, in Lagos, Nigeria, which housed participants to the World Black Festival of Arts and Culture in 1977 (Ebie, 2012). In this social housing estate development, various types of houses consisting of multi-storey buildings, duplexes, terraces, bungalows, blocks of 12, 24 and 48 flats were developed in the town (Ebie, 2012). This was aimed to be allocated to persons from various strata and social groups in society and included in its design such facilities as: play areas; police stations; post offices; places of public religious worship; schools; tarred roads; and storm water drainage. In addition, infrastructure such as: electricity; telephone services; and sewage disposal facilities were provided with underground installation methods being used. However, on completion and allocating this social housing estate in late 1977 and early 1978, both the rich, medium and low income groups could not afford to pay for the social houses as ear-marked for each income group. The Federal Housing Authority consulted and thereafter made recommendations to the then Head of the Federal Military Government that cost factors such as: cost of land; compensation payments; land survey; infrastructure (road, water, electricity, drainage, sewage treatment plant, telephone

services) and others be written off and deemed as subsidies to the prospective possessors of the social (public) housing estate. At the same time, repayments for home ownership was to be over an amortized period of 20 years with an interest rate of less than 5% per annum guaranteed. This implied that when approved by the Head of State, all that the purchasers would pay for were the substructure and superstructure of their building and no more.
Following the recommendations of the committee, the model was then adopted in all (the then) 12 states of the Federal Republic of Nigeria and to the present day in all the 36 states.

According to Ebie (2012), Fastac emerged to be the first and foremost social (public) housing estate development project in Nigeria that attempted to a large extent to benefit all income groups in society. Further, Ebie (2012) confirmed that this historic social housing estate development was a major contributor to the restructuring of Nigerian society in order to address structural, economic, social and spatial ill-functionalities and injustices in the public housing sector. Fastac also provided social housing an improved allocation process and contributed to the overall functioning of the housing sector such as in the mortgage. The social housing estate was able to contribute to widening the range of housing options available to the poor (Ebie, 2012). But, the questions that need to be asked are; what is the condition and situations of these social (public) housing estates since they were provided? and 'what is being delivered, if a maintenance or plan to sustain them cannot be delivered?. The answer to these has been provided in chapter five of this study.

If Fastac had been effectively implemented and post-construction managed sustainably, would Nigeria still have the sixteen million housing deficit and the nearly two and half million housing deficit particular to the Niger Delta region?, as shown in Table 2.2 below.

Table 2.2 Estimated Housing Estate Deficits in Core Niger Delta States

States	***Population (Based on 2006 Census)***	***Households***	***Deficiency***
Akwa Ibom	3, 920, 208	857, 436	448, 012
Bayelsa	1, 703, 358	352, 025	194, 665
Cross River	2, 888, 966	645, 521	330, 159
Delta	4, 098, 391	890, 312	468, 376
Edo	3, 218, 332	701, 073	367, 800
Rivers	5, 185, 400	1, 123, 998	592, 602
Total	***21, 014, 655***	***4, 570, 095***	***2, 401, 614***
Percentage (%)	**15.01**	**16.21**	**15.01**
Nigeria	***140, 003, 542***	***28, 197, 085***	***16,000,000***

Source: Ebie (2012)

There exists much more evidence that the social (public) housing estate is at the margin of the Nigerian national housing policy interests (Ebie, 2012), as it is focused on a much more market oriented housing delivery. Another major flaw was that social (public) housing estate conditions in Nigeria have remained the same. Aribigbola (2008) suggested that the need for much more policy endeavour towards social housing estate was an imperative towards achieving policy objectives. The current 2012 housing policy is lacking as it does not actively support the principles of: affordability; community involvement; fairness; comfort; and social justice that are the hallmarks to housing estate sustainability (Ebie, 2012).

At the same time, adequate information systems and needs assessment that would facilitate the proper design of such programmes is required as a support for social (public) housing estate production and post-construction management to be sustained. For example, in-depth knowledge on affordability levels of different socio-economic groups and households living in different places and cities should be assessed before such social (public) housing estate development. Ebie (2012) opined that it is apparently significant to not just necessarily understand the factors that sway social (public) housing estate affordability, but, also on how they could be beneficially moderated, adapted and integrated.

According to the FMLHUD (2012, p. 2), housing is defined as:

> *"the process of providing safe, comfortable, attractive, functional, affordable and identifiable shelter in a proper setting within a neighbourhood, supported by continuous maintenance of the built environment for the daily living activities of individuals/families within the community* ***while reflecting their socio-economic and cultural aspirations and preferences****. In addition, housing including the sustainability attributes of energy efficiency, resources conservation for improved quality of life".*
>
> (FMLHUD, 2012, p. 2)

However, this definition appears more applicable and acceptable to piecemeal housing as indicated by the bold highlighted text above. National housing problems cannot be solved through piecemeal housing. However, this definition recognizes individual effort, and therefore, piecemeal development remains valid as long as individuals continue to build their own houses. Nations that have attempted to solve their housing problems have not relied completely on piecemeal production but rather have adopted the principle of mass housing. Mass Housing to according to the FMLHUD (2012, p. 3) is defined as:

'the process of simultaneous production (building) to target prices of large number of decent, safe, sanitary and affordable residential buildings with secured tenure; on a continuous and permanent basis with adequate physical infrastructure, amenities and social services in a planned, healthy and liveable environment to meet the basic and special needs of the population and reflecting their socio-economic and cultural aspirations and preferences.'

(FMLHUD, 2012, p. 3)

According to the Nigerian National Housing Policy (2011) Social Housing is defined as

''the response by the Government to the housing challenges of 'No and Low' income earners; even though the production of such housing can be facilitated by market forces, government must use subsidy mechanisms for its distribution. It is therefore seen to promote an equitable and benevolent society and to restore the dignity of man. By this discharge of government social responsibility to the vast majority of the population who ordinarily would not have been able to afford them. It stabilizes the society from the insecurity challenges occasioned by homelessness".

(FMLHUD, 2012, p. 67)

Therefore, the goal is to ensure that this segment of the population has access to housing with the main objectives as to:

- Significantly improve the well-being of the poor, the needy and other vulnerable groups in the society as women, single mothers, the elderly, widows and widowers, the physically challenged, the homeless and a critical mass of citizens who fall into this group;
- Provide a sustainable way of reducing the housing deficit in the country, estimated at about 16-17 million units nationwide, as at 2011;
- Provide a window of opportunity for governments at all levels to demonstrate their commitment to the provision of social housing as a social responsibility to the citizenry, thereby institutionalizing an efficient, responsive and sustainable mechanism for housing delivery;
- Facilitate socio-economic development and unlock other complementary benefits to the economy in the realm of wealth creation, employment generation, stimulation of investment flows and value-addition arising from the use of alternative building materials and adoption of home-grown technologies;

- Promote the delivery of housing with secure tenure and facilitate access to funding of social housing from a variety of sources, including social housing financiers, ‘philanthropists and other interested parties;
- Facilitate the redevelopment and upgrading of urban slums for sustainable urban renewal and regeneration;
- Reduce rural-urban migration, and stem the consequential loss of precious rural assets and human capital, such as farmers and the youth, towards optimizing the contribution of the rural areas to national development;
- Foster peace and stability and promote human dignity, social cohesion and environmental sustainability;
- Incorporate micro-enterprises (such as agro-allied ventures) in the housing scheme with a view to generating employment opportunities and enhancing the ability of beneficiaries to repay their loans in a reasonable period with less strain (FMLHUD, 2012).

While according to the policy, the Strategies for Social Housing Production are such that it will:

- Efficiently complete as soon as possible abandoned programmes by past Governments and its agencies that target those in the low income bracket. This will maintain Government’s commitment to providing value for money for those who have deposited for those houses but have not got delivery;
- Adopt and sustain the concept of total funding of site and services to facilitate the access of the low-income group to serviced plots at reasonable cost;
- Make concerted efforts to eliminate the problems associated with finance;
- Encourage sufficiently long-term mortgage repayment periods for the no-income and low-income earners as well as rural housing;
- Promote the establishment of micro- enterprises in social housing schemes as in Agro-housing, with pilot schemes as a means of enhancing the income and subsequent mortgage repay-ability of the no-income and low income groups;
- Encourage Non-Governmental Organizations (NGOs) Community Based Organizations (CBOs) and Faith Based Organizations (FBOs) to build or facilitate the building of social housing estates as part of their corporate social responsibility with the possibility of incentives by Government;
- Encourage States and Local Governments to engage the services of Architects and the Nigerian Institute of Architects to make available to the low-income groups a variety

of standard architectural designs to meet different socio-cultural needs. Such designs shall be accepted as approvable plans, with considerable concessions on approval fees and formalities;

- Ensure that States and Local Governments implement Social Housing projects that have approved Land-Use and building designs to meet different socio-cultural needs with considerable concessions on approval and other fees;
- Encourage the establishment of Housing Co-operatives and Associations, self-built construction and locally-sourced building materials. Co-operative Societies and Housing Associations shall have access to the funds of the Federal Mortgage Bank of Nigeria through the primary Mortgage Institutions;
- Support and encourage the inclusion of Community Urban Upgrading Programmes (CUUP);
- Ensure the establishment of appropriate institutional machinery in all communities for efficient maintenance of infrastructure;
- Encourage and support through Housing Co-operatives and Housing Associations in the provision and maintenance of low- income housing in decent, safe and healthy environments;
- Encourage all tiers of Government especially at State and Local Government levels to specially allocate/donate land for no-income, low-income housing estates and mobilize recipients for effective housing development;
- Encourage the promotion, establishment and sustainability of the concept of co-operatives and housing associations through whose activities in organizing labour groups such as teachers, nurses, clerical staff of public and private sector organizations, civil servants etc., the housing needs of the low income shall be met. Here the emphases are on mobilization and the investment of "*Sweet Capital/Equity"* (FMLHUD, 2012).

From the FMLHUD (2012) the goals and objectives for the social housing estate above, it is clear that the emphasis focused much more on the production with little or no effort to provide a framework for the sustainability of the social housing estate after the production era. The purpose of sustainable development or the sustainability agenda is to ensure that any development has the potential to continuously provide evidence as in the case of housing, that it is: cheap; safe; accessible; comfort; and security of tenure; for the people (Cooper and Jones, 2008).

In this sense, it is assumed to be practically impossible in reality to achieve this were the framework to use in the post-construction management is not outlined. Hence the aim of this presents research.

2.3.1. Nigeria Social (Public) Housing Estates and Policies Contextualized

While still discussing housing, this section moves further so as to strengthen the rationale and enthusiasm for the research by contextualising current Nigeria national housing and its policy predicament. However, it is suspected that the problem stems from the government willingness and desire to reform its housing policy in conformity to the Habitat II Agenda housing enablement frame, as well as satisfying external demands for extensive housing poverty reduction and the urgent need for social housing estate affordability and management to be considered in the current housing reform. As a result, efforts have been made to set the historical background of housing policies in Nigeria to the current housing policy reform and the nature of the social (public) housing sector. While at the same time, makes an effort to attend to the contradictions, challenges and problems in structuring the current national housing policy. All this is to achieve the purpose of showing that housing estates provide benefits for all of the country if it is managed in a sustainable manner.

2.3.2. Housing Programme and Policy Reform Trends in Nigeria

The Nigerian housing sector has received tremendous material and financial resources which is still on-going to improve the housing situation in the country. However, the Nigerian national reform efforts towards contemporary housing estates could be traced back to Sir Fredrick Laggard's (1904) proclamation which goes by the Township Ordinance No. 29 of 1917.

These created European and Government Reserve Areas (GRA) with different planning standards and management structures from other urban districts where the natives lived. It could be argued that the ordinance was an attempt to attain spatial orderliness in the land use pattern within the cities, despite its underlying discriminatory character. A decade later, in 1927, another township ordinance was signed into law. This time, the new township ordinance remarkably contained for the first time, elaborate building regulation bye-laws geared towards enhancing housing standards within the urban areas. By 1946 however, the worsened urban housing problem had drawn government attention to the need for a concerted and systematic planning effort. The Ten-Year Development Plan and Welfare for Nigeria 1946 – 1956 (Nigerian Crown Colony, 1946, cited in Ndubueze, 2009, p. 25) stated that:

> *"...steps should be taken to ensure that the provision of proper amenities and the improvement of housing and living conditions should be given simultaneous attention."*

In 1956, the Nigerian Building Society was established to provide mortgage loans to investors. The African Staff Housing Fund was also created that same year to cater for the housing finance needs of native public servants and encourage urban homeownership within the class. At the same time, the Regional Housing Corporations were also established by various Regional Governments to provide direct housing to the general public. Despite these developments, Nigerian urban housing conditions worsened and the Third National Development Plan 1975- 1980, lamented the fact that prior development plans gave scant attention to housing. Up until then, housing was treated as a town and country planning issue, while planning itself was considered a low priority sector. All that changed with the new National Development Plan 1975-1980. In that Plan, the government stated that it:

> *"...accepts it as part of its social responsibility to participate actively in the provision of housing estate for all income groups and will therefore intervene on a large scale in this sector during the plan period. The aim is to achieve a significant increase in the supply of social housing (public) housing estate and to bring relief especially to the low income groups who are the worst affected by the current acute shortage"* (Federal Republic of Nigeria, 1975, p. 308).

Before this time, the government had traditionally tended to leave the burden of providing adequate housing for urban dwellers to the private sector, having restricted itself to the limited provision of housing estate for government officials, and some skeletal re-housing schemes occasioned by intermittent slum clearance projects. This bold intervention engendered an elaborate National Housing Programme especially at the Federal Government level and the State Government level. In 1975, a new Federal Ministry of Housing, Urban Development and Environment (FMHUDE), which later became the Federal Ministry of Works and Housing, were created to initiate and coordinate policies in housing and related areas. A year later (in 1976), the Nigerian Building Society was reconstituted to form the Federal Mortgage Bank with a capital base of ₦20 million (Naira), equivalent to £17.5 million, which was later increased to ₦150 million (Naira), equivalent to £123.3 million, in 1979 with a view to increasing its capacity and effectiveness. However, two decades after this ambitious and continued effort by the public and private sector respectively, housing problems in the urban

centres worsened, given the rapid population increases, accentuated by a high rate of urbanization (Ogu and Ogbuozobe, 2001; Ikejiofor, 1999; Federal Republic of Nigeria, 1997; Achunine, 1993; Federal Republic of Nigeria, 1991;). By February 1991, the government launched the National Housing Policy 1991 as the first and only consolidated housing policy in the country. The ultimate goal of the National Housing Policy was to ensure that all Nigerians own or have access to decent housing accommodation at affordable cost by the year 2000 (FMLHUD, 2012; Federal Republic of Nigeria, 1991). Still in pursuit to solve housing problems, the government in 2002 set up the Presidential Committee on Urban Development and Housing (PCHUD) to review existing 1991 housing policy and articulate a new National Housing Policy for the country. That move ushered in the National Housing Policy in 2002 with a Government White Paper based on the report of PCHUD of that year. The overall goal of the 2002 housing policy thrust, however, was similar to the previous policy in its promise "to ensure that all Nigerians own or have access to decent, safe, sanitary housing accommodation at affordable cost with secured tenure" (Federal Republic of Nigeria, 2002, cited in Ndubueze, 2009). But, the government accepted the proposal of the Committee to embark on a housing estate provision programme to construct 40,000 housing estate units per annum nation-wide and that it must be private sector-led with "government support and participation" (Federal Republic of Nigeria, 2002, cited in Ndubueze, 2009). This was a marked departure from the past where such programmes had consistently been government-led. Subsequent to the 2002 housing policy, the Federal Government created a new Ministry of Housing and Urban Development out of the Ministry of Works and Housing in 2003 as part of a new approach to fight against the complex challenges of housing and urban development in the country. At the same time, other housing and housing related institutions such as: the Federal Housing Authority (FHA), Federal Mortgage Bank of Nigeria (FMBN) and Urban Development Bank of Nigeria (UDBN) were created and placed under the new Ministry. By December 2006, the new Housing Ministry was merged with the Environment Ministry following a Federal Executive Council (FEC) meeting where the Federal Government pruned the number of ministries from 27 to 19. At this time, Ojenagbon (2007) contends that there were worries that the shift to subsume housing into the Environment Ministry would once again relegate housing to second fiddle status it had under the former Ministry of Works and Housing which did not foretell well to achieving the determined goals of the housing policy.

Until 2011 and after the development of the first independent National Housing Policy (1991), there was no articulated National housing policy nor did any update National Housing

Policy (FMLHUD, 2012). Several efforts were made to distil a National Housing Policy from reports, but all proved unsuccessful (FMLHUD, 2012). As a result, in September, 2011, a new National Housing Policy, with all relevant facts affecting the housing sector, was drafted. This revised National Housing policy has received the endorsement of stakeholders as well as the approval of the National Council of Lands, Housing and Urban Development (NCLHUD), and the National Economic Team (FMLHUD, 2012). But, at the moment, it is awaiting presentation to the National Council of States and finally the approval of the Federal Executive Council. Even though this Revised Policy is yet to be approved at the highest level of Government, there seems to be reasonable hope that Nigerians will be housed as the revised National Housing Policy states that the purpose of the policy is:

> *"to ensure that all Nigerian own or have access to decent, safe, and sanitary housing in a healthy environments with infrastructural services at affordable cost, with secure tenure...".*
>
> (FMLHUD, 2012, p. 2)

This places the housing sector as one of the prime drivers of socio-economic development, including job creation and employment as well as accelerated national transformation (Ebie, 2012). However, to provide a different perspective of the history of housing in Nigeria, the nature of the public and private housing sectors will be briefly discussed.

2.3.2.1. Public (Social) Sector Housing Estate

In the Public sector housing estate, there are two major categories such as the Government owned housing estate which is provided for civil servants, public officers and government officials and the other category is the mass public housing estate which the government provides to the general public.

Government owned housing are residential housing estates owned by the Federal or State Government or rented by them for their employees. They are usually allocated to Civil Servants and government employees of certain grades and categories at a small fixed rent which is deducted monthly from their salaries. About 25% of civil servants are provided accommodation through this type of housing estate (Talba, 2004). There are essentially two distinct types of government owned housing namely the Government Residential Areas (GRAs) and the low income staff housing for workers in government institutions/agencies. The GRAs are found in virtually all major Nigerian cities. They originated in the British colonial administration culture of building European Quarters to accommodate the

increasingly large number of colonial administrators and executives of key commercial firms coming into the country during the late 1920s. House types within the GRAs often consist of western styled single family housing with generous plot sizes and open spaces. The GRAs have the lowest urban housing density with about one housing unit per two hectares with slight variations between cities (Mba, 1993; cited in Ebie, 2012 and Ndubueze, 2009). With the departure of many of the British on Nigerian Independence, the GRAs have provided a highly subsidized luxurious housing for high ranking government officials.

The other type of government owned housing is those that were provided to the lower/middle cadre workers by many government corporations and agencies in pursuit of providing basic affordable housing to their employees near their places of work. This type of housing is far less exciting than their GRAs counterparts. They are often made up of one or two bedroom apartments in detached, semi-detached or row-houses on much smaller plot sizes. Although these types of housing often result in high density neighbourhoods, they are provided with adequate basic facilities and utilities and often offer comparatively better accommodation than other high density / low income neighbourhoods at more affordable subsidised costs to workers lucky enough to benefit from such housing.

However, with a policy shift to minimise the role of the Federal Government in housing provision and in keeping with the on-going pro-market civil service reform, the government is currently implementing the residential housing monetisation policy in the Federal Civil Service where the fringe benefits (such as subsidized housing) being enjoyed by Civil Servants as part of their remuneration package and conditions of service are converted into cash benefits. This policy involves selling-off to the highest bidder by public auction all government-owned quarters and government-rented quarters. Under this policy, every single Civil Servant in the Federal Civil Service is now to provide for their own accommodation but will be paid between 50% and 75% of the Annual Basic Salary as an accommodation allowance, depending on the seniority level (Talba, 2004). While the Federal Government has argued that such a policy represents a more efficient allocation of resources and equity in the provision of amenities for Public Officers, it directly corresponds to substituting direct housing supply subsidy with a pro-market oriented housing demand subsidy. One of the major criticisms and reservations with the policy is that the Government's desire to sell these houses at current market rates makes such houses unaffordable to the civil servants who used to occupy them prior to this policy, thereby forcing them to look for sub-standard accommodation in less desirable locations and neighbourhoods (Talba, 2004). While it remains to be seen how such a policy will represent a more significant efficient allocation of

resources, it is clear that for most civil servants that benefitted from the erstwhile subsidised housing programme, the present monetisation policy could in fact worsen their housing conditions. However, this housing type is excluded from the subsequent research.

The mass public housing which the government provides for the general public is the other category of public sector housing. This housing is the most contentious and the most discussed public sector housing. This is often designed and built by designated Government Agencies at both the Federal and State levels. The actual construction of such housing is undertaken by private construction companies and building contractors who have won such contracts from the appropriate government agency. Under this type of housing programme, completed houses are rented or sold to the general public at subsidised prices. A wide range of housing, catering for households of different income levels, is usually provided under such programmes. Beneficiaries are usually drawn from the wide pool of applicants through public ballot. Such allocation processes are often abused and manipulated which often results in the housing being occupied by households other than those who were meant to benefit. This type of housing programme remains a symbol of the failed attempt by governments to directly intervene in the urban housing market and provide affordable housing to the majority of Nigerians.

The history of this mass public housing provision is worth discussing in more detail, given the direct intervention in housing processes that it represents.

For about three decades from the 1960's, the Nigerian government was committed to the idea of direct public housing provision. Although different housing strategies such as: slum clearance and resettlement; public housing schemes; sites-and-services; settlement upgrading; core-housing schemes; low-income housing; and staff housing schemes; have been emphasized during this period (Aribigbola, 2008; Okoroafor, 2007; Ogu and Ogbuozobe, 2001), the direct production of housing by the public sector remained a common feature of these strategies. These strategies had little effect on housing provision as is shown later in this study.

The National Housing Policy (Federal Republic of Nigeria, 1991) resolved to:

> *"encourage private and public involvement in the direct construction of housing for letting and for sale in the urban areas"*
>
> (Federal Republic of Nigeria, 1991, p. 22)

Despite articulating this new enabling approach in housing delivery for the country, direct public housing provision in the country was executed within a three-tier institutional framework. The first tier consisted of housing units built under the auspices of the Federal Housing Authority (FHA), which had been created in 1973 (Kabir and Bustani, 2012). Its responsibilities, amongst others, included the execution of housing programmes as were approved by the Federal Government (Kabir and Bustani, 2012). The next tier consisted of housing units built by the State Housing Corporations under the State Government Housing Programmes. The third tier at the local urban level consisted of housing projects of Government quarters that are located in various urban capitals such as the GRAs and staff quarters of government agencies (which as previously stated are excluded from this research).

From the foregoing, it was apparent that efficient and effective coordination of responsibilities between the different tiers were crucial ingredients in guaranteeing a reasonable level of success in the implementation of the housing estate programmes. However, a combination of factors and diverse political interests at different levels of government in Nigeria affect the chances of fostering the harmony of purpose and political will that could have provided the basis for proper coordination of these programmes. With these vital components lost, the programme was fated to failure. As a result, the grand vision of improving the housing conditions of the people through mass direct public construction by both Federal and State Governments in the country has met with tiny achievement. Their impact in resolving the existing housing problems and shortages in the country has been at best negligible despite tremendous financial resources that have been invested in these programmes as shown in Table 2.3.

Table 2.3 Housing Schemes/Production by the Federal Government of Nigeria: Intended and Actual Number of Units, 1971-2013 Compared

Periods	*Intended Number of Housing Units*	*Number of Housing Units Produced*	*Attainment %*
1971-1974	59,000	7, 080	12.0
1975-1980	202,000	28,500	14.1
1981-1985	200,000	47,234	23.6
1986-1993	Military Era	Military Era	Military Era
1994-1999	121,000	1,136-	0.9
2000-2009	40,000	-	0.0
2010-2013	3,120,000	-	0.0
Total	3,742,000	83,950	14.42

Compiled by Author from different Sources

From Table 2.3, between 1971 and 1995, a total of approximately 582,000 housing units were expected to be collectively produced under these various programmes, but only about 84,000 representing a total of 15% of these units were actually built. Many of these programmes did not move beyond their initial first phase.

In the first national housing programme of 1971-1975, the military government proposed to provide about 59,000 housing units, 15,000 for Lagos (the then national capital) and 4000 units for each of the (then) other 12 states in the federation. Only about 12% of the proposed housing units were built by the end of the programme (Ademiluyi, 2010; Okpala, 1986). The second 5-year housing programme implemented during the Third Development Plan period (1975-1980) proposed a total of 202,000 units. Of these, 50,000 units were to be built in Lagos and about 8,000 units in each of the (then) other 19 states of the country. At the end of the programme, only about 8,500 units were built in Lagos while only 20,000 units of the proposed total of 152,000 were provided in the rest of the country (Ademiluyi, 2010).

The third national housing programme initiated by the civilian administration under the fourth national development plan (1980-1985) did not produce any better result. In the programme, over 80% of the total proposed units were meant for low-income households. A total of about 40,000 (of which 90 per cent were to be one-bedroom, 10 per cent three- bedroom) housing units were proposed to be constructed annually nationwide with 2,000 allotted to each state of the Federation including Abuja. Of the ₦1.9 billion (Naira), equivalent to £1.6 billion, that was earmarked for the programme to produce about 200,000 housing units, by June 1983, about ₦600 million (Naira), equivalent to £504 million, was spent on completing only 32,000 units, yielding an overall achievement level of just 20 per cent (Ademiluyi, 2010; Federal Republic of Nigeria, 1991).

This programme was particularly marred by a high level of political power struggle between the Federal Government and many State Governments and came to an unexpected end in December 1983 with the overthrow of the civilian government in a military coup d'état. As a result, no actual housing development plan was made and achieved within the periods from 1986 to 1993.

In 1994, a new direct public housing programme was again launched by the (then) military government despite repeated failures of previous governments in this regard. This time the programme proposed the construction of about 121,000 housing estate units as indicated in table 2.3 above. The scheme was fraught with so many problems that only 1, 136 housing

units representing 0.9% of the total 121, 000 housing estate units were produced (Ademiluyi, 2010).

Yet the civilian government that came to power in 1999, the Federal Ministry of Works and Housing (FMWH) and a number of State Governments continued to embark on direct (though limited) housing programmes. Contracts for sites and services schemes involving 7730 plots in parts of the country were awarded by the Federal Government and the FMWH initiated a small-scale direct housing scheme aimed at producing 20,000 dwelling units by the year 2003, and up till today, statistics have not proved the number of housing units that have actually been produced since 1999 (Ademiluyi, 2010). Many studies have attempted to present a detailed analysis and argument on the different reasons that led to the failure of public housing in Nigeria. Some of these reasons border on the excessive politicisation and prevailing corruption that festered fraudulent practices during implementation of the programme (Kadiri, 2004; Ikejiofor, 1999; Morah, 1993; Ogunshakin and Olayinwole, 1992; Aina, 1990); while others have emphasised the issue of incompetent contractors taking charge of projects, poor project supervision due to insufficiency of supervisory technical staff at building sites (FMLHUD, 2012; Agbo, 1996; Agbola, 1993; Osuide, 1988). Others studies identified issues of excessive costs of completing such public housing; problems of targeting beneficiaries and sharp housing allocation practices that limited the possibility of such housing reaching the poor for whom they were built in favour of higher income households (Ebie, 2012; Ogunshakin and Olayinwole, 1992; Agbola, 1990b; Cheema, 1987; Salau, 1985). There were also the problems of the lack of need assessments of the poor, indiscriminate and uncoordinated location of housing projects, often located in isolated areas outside the precinct of viable existing communities (Ademiluyi, 2010; Ikejiofor, 1999; Onibokun, 1990). It is not the intention of this research to discuss these problems in detail here. The ambitious dream of directly providing adequate public housing estates in the country was a programme that has never been realised. Considering also the Nigerian Vision 20:2020 and as indicated in Table 2.3 above, proposal to produce a total of 3,120,000 housing units in the entire country from 2010 to 2013, yet evidence has shown that none have been produced (Nigerian Vision 20:2020).

The present official thought is that such programmes should be public-private partnership-led instead of government-led alone (Nigerian Vision 20:2020). This symbolises a major shift in the way the government intends to presently pursue the implementation of a mass housing programme in Nigeria. It is however noteworthy that various states in Nigeria could still embark on the direct housing delivery given the housing policy provision that each state shall

"provide low income housing through appropriate designated Ministry/Agency" (FMLHUD, 2012). An example is the current housing provision proposal by the Lagos State Government to provide about 2000 housing units through direct labour/contract by the State Ministry of Housing (Ehingbeti, 2008). Another is the 1000 housing units' project at Workers Estate being carried out by Ogun State government to house the civil/public servants in the state (Ayeyemi, 2007).

2.3.2.2. Private Sector Housing

In spite of the previous mass public housing policy emphasis of the government, the private sector has remained as the dominant sector in Nigerian housing development. Even at the height of its implementation, the volume and type of public housing were too limited to impact on the size and structure of urban housing demand, affect rents or propel any filtering down process in the country (Ozo, 1990). In fact, the Nigerian National Housing Policy acknowledged that the private sector accounts for over 90% of the housing stock in the country (Federal Republic of Nigeria, 2002). The private sector as broadly referred to here is the amalgam of individuals, small-scale builders, commercial estate developers/agencies, banking and non-banking financial intermediaries, and industrial and commercial organisations that invest in housing with a view to making profit. Therefore its usage here essentially covers most other forms of housing provision that are not delivered by the government agencies. The housing role of the major private sector groups is discussed below.

2.3.2.3. Individuals and Households Housing Estates

Individuals and households constitute the most dominant sub-sector within the private sector in the provision of urban housing in Nigeria. In fact, more than 70 per cent of the total urban housing stock (which includes both owner-occupier and rental housing) in Nigeria is provided by individuals (UNCHS, 1993b). Although this sub-sector accounts for delivering the bulk of rented housing in the urban area, self-interest is the over-riding motive. In so doing, the type of housing provided cuts across different income groups from the higher-end of luxurious owner occupied housing to the lower-end housing including the informal sub-standard ones. Given that the bulk of urban households consist of mostly low-income and middle-income households, it is within the housing sub-markets for these groups that they are most visible. Many of these house owners rent out extra apartments and rooms within their houses in order to recoup their housing investments and augment their household income. There are many cases where such land/property owners further build and rent out additional house(s) on a purely commercial basis. This is usually the case in many low-income housing neighbourhoods and informal housing settlements where many landlords have earlier lived

before moving to better higher income neighbourhoods. This culture of financing home ownership through personal savings and effort is firmly rooted in the traditional rural housing provision system, which to a large extent has strongly influenced this practice in the urban areas.

2.3.2.4. Private Profit-Oriented Firms Housing Estates

The role and scale of this sub-sector in housing provision within the country is growing especially in recent years. The sub-sector comprises of three categories of developers namely: the more traditional large-scale construction firms; multi-national co-operation corporations including major Nigerian banks; and the small and medium-scale property development firms. Making up the first group are construction companies, many of which have been based in the country for a long period of time that dates back before national independence in 1960. They are traditionally involved in large-scale housing construction including urban residential housing and they include such firms as G. Cappa, Julius Berger, Bouygues, and Taylor Woodrow, etc. Their ranks are gradually swelling with new entrants such as HFP Engineering Nigeria Ltd, Alma Beach Estate Developers, and Seagate Estate Developers. However, most of the large-scale activities of these property developers have always tended to be concentrated in developing prime high end exclusive residential housing in and around places like Lagos, Abuja, Port Harcourt etc. on sites mostly provided and serviced by the government. Thus, they mostly cater for the high-income private housing sub-markets. They are also involved in staff housing programmes. The next group of developers is made up of big multi-national corporations such as: Shell Oil Company; Elf Oil Company; United African Company; SCOA; British American Insurance Company PLC; NICON Insurance; and large Nigerian commercial banks such as: First Bank; United Bank for Africa; and Union Bank of Nigeria. All of these have mostly engaged in staff housing programmes and (in some cases) other sorts of commercial rental housing ventures. Many of these firms participate in the employees' housing schemes that were established by the Special Provisions Decree No.54 of 1979 (as amended), which was meant to encourage these firms to provide adequate housing for their staff. However, in practice the housing efforts of these corporations have in most cases tended towards providing for mostly middle and high level staff and other high-income households that can afford these houses rather than to lower level staff in these corporations and banks. The last group of developers includes the small-scale property developers. Currently, there has been a dramatic up-surge both in their number and in their residential housing development activities. They are usually engaged in providing housing for high and upper-middle income groups within the urban areas in the country. They presently

constitute the most dynamic group within this sub-sector, although there are no official data to actually determine the level of their impact.

Generally, the increase in small and medium-scale gated residential estates in the big cities such as Ancestors Courts in Abuja, Mayfair Gardens in Lagos and Ogbondah layout in Port Harcourt bear testimony to the increasing prominence of the sub-sector. With regard to current activities, the most dynamic of these firms include such firms as: Property Development Company (PDC) Plc; Grant Properties; Crown Realties Plc; and Cornerstone Construction Nig. Limited (Ojenagbon, 2004). To date, the housing development activities of the sub-sector and the houses they provide are clearly beyond the reach of most Nigerians. This constitutes a major policy challenge that needs to be addressed considering the fact that there is no evidence of better quality housing filtering down to the lower income households at affordable costs through the development of higher-end housing in most Nigerian cities. This contention will be elaborated later.

2.3.2.5. NGOS, CBOS and Cooperatives Housing Estates

It is generally believed that the primary role of NGOs is not only to complement the effort of the government, but also to assist vulnerable target groups in the development process. NGOs provide information on specific subjects, contribute to standard setting, procedural progress and also generate creative innovations. These organizations are increasingly seen as the 'viable alternative vehicle' in providing non-profit housing especially for the lower income groups, but have yet to make any significant impact in Nigerian housing sector development. The country has a varied collection of voluntary agencies under the NGO umbrella. Most of these NGOs are no more than social clubs that provide ambulance and rudimentary social services (Agbola, 1994). However in recent years, there has been an increasing rise in the role and activities of these organizations, which has led to their growing relevance in the country. However these NGOs are mostly concerned with human and gender rights advocacy, urban and rural poverty alleviation schemes for example: rural cooperatives and micro-credit; social care and rehabilitation; capacity building; and manpower development schemes. Organized civil-society institutions are barely emerging in Nigeria especially in terms of participating in urban housing delivery and very little has been done to encourage them in this direction. For instance, such programmes as cooperative housing schemes have scarcely received the attention they deserve within official circles beyond mere supportive declarations in favour of such ideas. It is important to bear in mind that the concept of cooperative housing is not new in Nigeria. In fact, cooperative and self-help housing are very traditional means of providing housing in many rural areas. The major challenge is how to transform it into an effective

urban housing delivery tool. Not much has been done towards creating a more favourable environment for the growth of cooperative housing within the urban housing delivery framework. There is a current lack of solid institutional framework to support urban cooperative housing activities. For instance, there are yet to be collective guarantee schemes that would enable cooperative societies to participate in: urban housing development; support collateral for individual members; or joint applications for housing loans schemes in the country. However there are pockets of effort being made by NGOs to expand their activities into housing delivery programmes. For instance, Better Life Programme for Rural Women (BLPRW) – a defunct popular NGO under the military regime (1986-97) was one the earliest NGOs that attempted to incorporate housing delivery into their major objectives. During this period, in addition to facilitating the engagement of its members in diverse economic ventures, the BLPRW also expanded their activities into the provision of housing for destitute widows and orphans. Although their success was limited, it has been seen as a significant pioneering effort.

Of all the groups in this sub-sector, community-based organisations/associations (CBOs), which constitute the 'most local' of these grassroots organisations, have played the most prominent role in contributing to housing delivery. Given the high level of community cohesion in the rural areas, the CBOs have been more effective in these areas, where they have significantly contributed to the provision and maintenance of community infrastructure and services through self-help and public/community partnership arrangements. Within the urban areas, the CBOs have been active in promotion and maintenance of security in many neighbourhoods/streets through neighbourhoods/streets citizen watch groups. Some have also been involved in neighbourhood upgrading programmes through self-help housing activities. Existing CBO structures at the grassroots offer great opportunity towards forging veritable partnerships to the benefit of communities in the initiation and development of housing programmes.

In concluding this brief discourse of the private sector in Nigerian housing delivery, it is pertinent to note that government policy has correspondingly done little to encourage private sector housing development except perhaps the provisions within the 2011, 2002 and 1991 housing policies that grant some capital allowances and tax exemptions to corporate developers. There were no substantial extra investment incentives for the private sector under the new current 2011 housing policy, when compared with the previous policy with the exception of removal of rent control measures in the current housing policy. It is doubtful if these incentives are sufficient enough to engender the massive enthusiastic response and

participation of the private sector which the policy intended to stimulate. Even where sufficient, the implementation, monitoring, evaluating and reporting has remained a problem.

2.4. HOUSING ESTATE MAINTENANCE MANAGEMENT: A THEORETICAL CONCEPT

A building is the walled roofed structure used for many economic activities and cannot remain new all throughout the life span. Therefore, the need not to allow it to undergo physical, functional and economic obsolescence even when built new is significant. At the same time, good building maintenance practice will increase its value with respect to functionality, physical appearance and economic returns (Olanrewaju *et. al.*, 2011). Building maintenance is perhaps one of the functions of an estate manager and entails the planning, forecasting, controlling, directing and co-ordinating of maintenance activities with the aim of optimizing returns (Baharum *et. al*., 2009).

Building maintenance is a recognised trade which must be done properly (Allen, 1993). It is a significant process to undertake as it aims to preserve buildings for their continual use in the built environment. Also, value for money, investment and good appearance ought to be integrated (Olanrewaju *et. al.*, 2011).

Allen (1993) asserted that at first, the significance of building maintenance in Nigeria was not recognised but the need for it started as the construction industry activities began in the early 1960's. He further indicated that it was after the World War II when the need for mass public housing building programme of the 1950's and 1960's gained momentum that building maintenance began to take its position with the establishment of building maintenance education and training all over the world.

However, ''building maintenance'' or ''maintenance'' has several definitions but British Standard Institution (BSI 3811, 1964 and 1993) posits it as works undertaken in order to keep or restore every facility including the site, building, and to an acceptable standard/condition.

Also, the Building Maintenance Committee (HSMO, 1972) asserts that the definition was narrow and suggest it should include ''improving any facility, that is, every part of a building, its services and surrounds to a currently acceptable standard and to sustain the utility and value of the facility''.

But in an attempt to specialize this definition to a particular built environment, Woodbine (1970) defined it to be ‘‘works undertaken to keep or restore hospital premises to acceptable standards of safety and efficiency having regards to the need of the patients and staff within the immediate environment, the organisation and the resources available’’. However, in the recent move to rationalize the building maintenance definition in the educational and vocational sectors, it has included the word ‘maintain’, ‘repair’, and ‘alter’ to reflect the requirements of the clients, end users and the community (Allen, 1993). Again, Cripps (1985) in contributing to the debate asserts that building maintenance is ‘‘the combination of all technical and associated administrative actions to retain an item or restore it to a state in which it can perform its required function’’. Finch (1998) contended that the BSI, (1993) definition of building maintenance was much more limited. Finch (1998) maintained that a condition based approach to built asset maintenance management could not at best allow the building capacity to return to its original state, since improved technical and serviceable demands result, which leads to obsolescence and subsequent building failure. However, the Chartered Institute of Building (CIOB, 1990) based on the existing obsolescence gap in building defined maintenance and refurbishment as ‘‘work undertaken in order to keep, restore, or improve every facility, its services and surrounds to a currently acceptable standard and to sustain the utility and value of the facility’’. Similarly, Olanrewaju *et. al.* (2011) asserted that building maintenance is ‘processes and services to preserve, repair, protect and care for a building’s fabric and engineering services after completion, repair, refurbishment or replacement to current standards to enable it to serve its intended functions throughout its entire life span without drastically upsetting its basic features and use’. However, from all the definitions indicated above and many others, it all revolves around and within the phrase restoring, maintaining, or repairing a building so as to improve the value of the built assets. But, while the present research assertion is based on the various definitions held in the context, the meaning in context of sustainability is equally worthy of consideration. Sustainable building maintenance management as indicted by Wood (2005) is the maintenance management practice that considers both the sustainability of the building and the sustainability of the operations. Therefore, sustainable housing maintenance management is that which embraces all operational processes to enhance the physical, functional and economic value of the housing estate harmoniously and will not infringe on the health, safety and comfort of any individual in the built environment. From the purpose and goal of housing/building maintenance management, it suffices to state that it is the same as facility management. But, this assertion may be problematic to comprehend, and as such the next topic discussion shows if the assertion is positively or negatively justified in the context.

2.4.1. Housing Estate Maintenance Management and Facility Management Compared

Currently, Housing/ building estates maintenance management has become more complex in its service provisions because of the dynamic changes within the built environment and the preferences of the end users of the housing estates. These changes have initiated the thought by researchers that a broader perspective of looking at housing estate/building maintenance management as related to facility management emerged (Allen, 1993). Toland (1991) and Gijs and Rycken (1991) argued that a building (for example housing estate) should not be regarded as an overhead asset of an organization, but an aspect of the total organization assets that must be managed properly and sustained in the built environment. However, if the understanding of the housing maintenance processes is maintenance management, as well as understanding that also involved in facility management is housing/building maintenance management (Allen, 1993), then it is opined that they are related. But, facility management deals much more on broader and complex issues than could housing estates or property maintenance management do. Nonetheless, housing estate maintenance management for sustainability would include expertise and knowledge from business management principles, property management, contract law and the sociology of the built environment. This may imply that the quality and sustainability of social housing estate maintenance management depends on certain information and how they are obtained from the present social housing estate condition, the end users and the manner the maintenance work is carried out. Therefore, housing estate maintenance management will encompass all the operations and activities that allow the effective and efficient utilisation of the available material and financial resources so as to keep the prudency of the housing estate. But, Allen (1993) highlighted that achieving such objectives, strategy and process is significant and used Figure 2.2 to strengthen the argument.

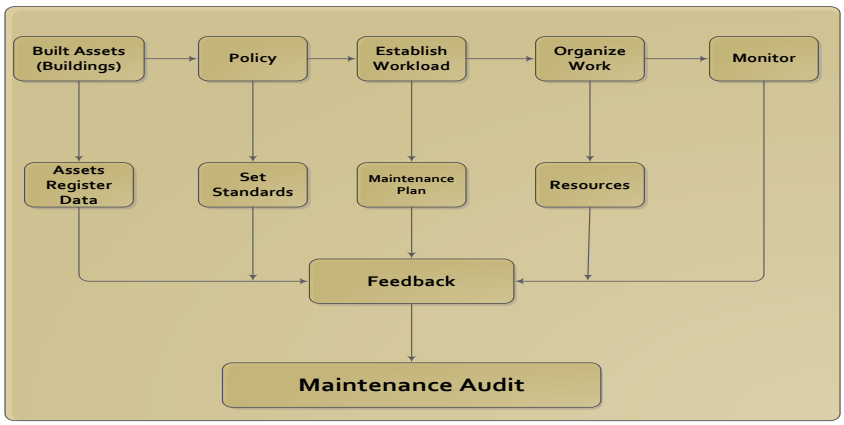

Figure 2.2: Built Assets Maintenance Management Model/Framework (Adapted from Allen, 1993)

From the model, it indicates that once a built asset such as social housing estate is developed, the manner in which it should be used and sustained should be made feasible through policy formulation. Within this the standards, workload, how the work will be managed and the monitoring strategy are established. It is also on this that the maintenance plan, approaches and the resource requirements are budgeted with regular feedback and maintenance audit on work carried out for the forecasting of future actions or decision making. Allen (1993) opined that the need to undertake this management framework is to ensure that the output is measurable within the objectives and policies of the institution/ organisation. It also identifies areas where a different approach could be improved through the technical, managerial and design strategies, and ensures the effective and efficient utilization of available resources for the housing estate maintenance management task.

Sherwin (2000) and Tsang (2002) contended that built assets such as social housing estate maintenance management is a cost burden to an organization, and as such, identification and assessments of the present status of the house/building and alignment within available resources is much more important. Despite this, Chew *et. al.* (2004) assert that most organisations show a reluctance to spend in order to maintain or preserve the condition of the built assets even when economic conditions are good. It is through this unwillingness of commitment by an organisation that social (public) housing estates fail to live up to their optimum operating capacity and functional feats. Ariditi and Nawakorawit (1999) suggested that such built assets would invariably lead to a spiral of decline, disrepair, and eventually collapse and abandonment. Similarly, it is opined that an obsolescence gap is created in the social housing estate thereby making it unable to meet all the purposes for its creation in the built environment. But, Jones and Sharp (2007) suggest that the condition of the built assets *per se* is not significant; rather what matters much more to stakeholders is the impact the obsolescence gap created would have on the performance of the building as to meet the task placed on it. However, the most relevant problems to consider in built assets maintenance management such as for social housing estates, is what it measures, how it is measured and known; hence Jones and Sharp (2007) suggested that it should not be on what it needed to justify for the maintenance management of the house or building by an organization.

Facility Management is the process by which an organisation delivers and sustains support services in a quality environment to meet strategic needs (Centre for Facility Management, 1990). Alexander (2000) emphasises that facility management should be seen as the process by which an organisation ensures that its houses/buildings, systems and services support core operations and processes as well as contributing to achieving its strategic objective in

changing conditions. Therefore, it can be said to entail the amalgamation of people, technology, and support services so as to accomplish an organisation's assignment; and this technology, systems and services must be directed, organised, coordinated and supervised by a manager. In a similar approach, the Facility Management Institution (a non-profit educational and research oriented organisation) considered facility management and suggested it as managing and coordinating interrelated people, process and place issues and functions within the corporation. The U.S. Library of Congress (1992) cited in IFMA (2003) report concluded by recommending that facility management is the practice of coordinating the physical workplace with the people and work of the organisation; integrating the principles of business administration, architecture, and the behavioural and engineering sciences. Again, the International Facility Management Association (IFMA) described facility management as a profession that encompasses multiple disciplines interacting together to ensure functionality of the built environment by integrating people, place, process and technology (IFMA, 2003). Furthermore, facility management based on its multiple disciplines nature, branches into: long-range planning; annual facility planning; facility financial forecasting and management; real estate acquisition and or disposal; and architectural and engineering planning and design. It should be noted that people and the resources available are central in order to sustainably manage these dynamic built environment assets such as social housing estates. Also, it will be identified as being related to other terms such as property management and built assets management since it is a multidisciplinary field. But, built asset management is considered to be the administration, operation and management of a property portfolio including land, facilities, and legal commitments controlled by an owner, tenant, developer or landlord. Though, built asset management can be part of property management or a service outside the property management or included in a facility management business case as a function which focuses on the physical land, house/building and or space, and the operation and management of these assets, but may not usually tackle people issues (Rondeau, *et. al.,* 2006). In social housing estate management, understanding the tenants' attitude and trying to respond to it is a good reason why tackling people issues are prominent if housing property is to be sustainable. Although, Rondeau, *et. al.* (2006) argues that property management is aimed at a profitable operation and management of owned, leased, or sub-leased property including: land; buildings; assets; equipment; and legal commitments for an owner, developer or landlord. In this assertion, people responsibilities and participation is ignored. But, as earlier mentioned all built assets need to be organised, directed and planned for effective and efficient productivity; and that people are central to this, the involvement and management of people to the activity that brings sustainability to

social (public) housing estate cannot be overlooked. People bring and coordinate all of this, whether material or financial resources for the business objective to be achieved. Again, since the major interest is to provide high-quality, cost effective services to in-house customers in support of the corporation business case, therefore focusing on both the people and process issues rather than place issues as indicated in asset management is also important. However, Rondeau, *et. al.* (2006) contended that facility management is not concerned itself with corporate management for profit as in the case of property management and built asset management.

Whether housing maintenance management is the same as or related to facility management as earlier mentioned, it is opined that they are different but related. This is because the totality of its processes ensures the focus on resources so as to meet the owner and users' needs. Also, to support the key role of people in an organisation, and strive continuously to improve quality, reduce risk and ensure value for money (Alexander, 2000). But, the relationship emerges where both uses the management principles of planning, coordinating, directing etc. in achieving organisational objectives. Nevertheless, what is imperative to the nature of facility management and housing maintenance management, practiced in any scenario, are the cultures, norms, beliefs and the administrative patterns in the setting. This is to be recognised first if the operating environment is to be safe and the services needed to achieve organisational objectives are to be met. However, as earlier stated, this research does not intend to dwell on facility management, rather to show a brief conceptual underpinning of facility management, and the differences and relationships with housing/building maintenance management. Thereafter, to limit to housing/building maintenance management which is one of the primary and relevant objectives of this research study.

As such, maintenance management covers the operations and functions, emphasising the effective and efficient deployment of resources to ensure that the processes and facilities are kept functioning to an acceptable standard as may be required by the end-users. While, housing/building maintenance management emphasises on restoring, maintaining, or repairing a house/building to improve the value of the built assets. This is enhanced with the understanding of the policy and objectives of why the social (public) housing estate for instance, is provided and the need to apply an appropriate maintenance approach. In this context, housing/building maintenance management objectives, policy and types are necessary in this present research work, and as such are discussed in the next section of this research study.

2.4.2. Housing/Building Maintenance Management Policy, Objectives and Types

2.4.2.1. Housing Maintenance Policy and Objectives

Housing estates/buildings maintenance is not all about the property *per se*; rather it includes: the property itself; the purpose for its existence; and its occupants or users. Without such, the requirement to design objectives, policies and an appropriate strategy to accomplish the aim, objectives and accruable benefits of why the housing estates are provided would be limited. From the definitions of building maintenance as earlier stated in the literature review, the objectives of housing estates/buildings maintenance have remained the same. This is summarised or enlisted and as indicated by Adenuga, *et. al.* (2010) and Oyefeko (1999) as thus to ensure and maintain that the:

- Buildings and their associated services are in a safe condition;
- Building are fit for use;
- Condition of the building meets all statutory requirements;
- Value of the building stock is maintained;
- Quality of the building is improved.

But, in order for the building (housing) maintenance objectives to be accomplished, a housing maintenance policy is required which supports the objectives. The formulated housing estate maintenance policy is a tool that would enhance and ensure the proper planning for any maintenance strategy in housing estate maintenance work. Lee and Scott (2009) asserted in their study of maintenance strategy that the proper order of formulating housing estate or building maintenance policy should be as in Figure 2.3

Figure 2.3. The Building Maintenance Policy and Strategy Formulation Chains (Adapted from Lee and Scott, 2009)

Therefore, from Figure 2.3 and as indicated by Lee and Wordworth (2001), the housing estate or building maintenance management policy would consist of the:

- Length of time for maintaining for their present uses;
- Life cycle requirement of the building and their fittings and services;
- Standard to which the house and its services are to be maintained;
- Reaction time required between a defect occurring and a repair being undertaken;
- Legal and statutory requirements needed for successful maintenance operations.

Lee and Scott (2009) identified that there are always challenges for a successful maintenance approach to be agreed and accepted by an organisation. The probable reason could be that the types and managerial decisions inputs in the post-construction management are yet to be understood. Another reason could be that understanding a proper assessment of how the maintenance management objectives relates and matches with the organisational or owners aim and objectives, for example on a housing estate, are limited. As such, if a maintenance policy is to be developed, issues such as: the house/building maintenance management objectives; accruable benefits; and the policies behind the maintenance; are fundamentally significant (Armstrong, 1987). Therefore, the main purpose of having a maintenance policy is to ensure that the maintenance approach, standards and resources as well as relating them to the main reason for the policy are agreed and accepted before implementation. The maintenance policy should be a clear statement of the objectives and methods to be employed in keeping the built environment fit for use and preserving its asset value. It should define the framework on which all maintenance and management operations are based and state the life expectancy, or required life expectancy, of the asset. The policy should lay down guidelines concerning acceptable thresholds for technical standards, civil and statutory legal considerations (particularly health and safety issues), and budgetary control, relations with the users of the building and the control and execution of maintenance and servicing operations. But, since housing is an essential, costly and valuable asset, it is imperative that it be looked after. The potential consequences of an often overlooked lack of maintenance is the huge cost of damage to the building, the services and the entire built environment, with an ultimate decline in the organisation's value and reputation to the stakeholders. The costs incurred by, and the benefits accruing from, occupying and maintaining such housing estates have a significant impact on the well-being and efficiency of its users. In this case, housing estates maintenance management should therefore be seen as an important component in furthering the business objectives of the organisation and others who have a stake in it. The maintenance policy should therefore be integrated with the wider task declaration, business plan and

management policies of the organisation that controls the building management, whether as owner-occupier, landlord or tenant. The maintenance policy should always be agreed and reviewed by involving all the decision–makers in the organisation as a part of the overall management strategy: particularly the housing maintenance management team. After such review and acceptance, the housing estate maintenance management team should be made aware of the maintenance requirements so that they can set the appropriate levels of funding and approach required to ensure that the maintenance policy objectives are met.

Contrarily, the absence of a formal maintenance policy can lead to a lack of focus in housing estate maintenance management administration, requirements and funding, and this might be viewed as: misplaced effort; lack of clear course; neglect; and squandering of resources (RICS, 2012). This may result in: undue disruption to building users; the creation of health and safety hazards; asset depreciation; and poor value for money. Therefore, a maintenance policy is an essential precondition to achieve well-managed and cost-effective housing estate maintenance management. The maintenance policy will become the management instrument for the management of the maintenance workers, top decision-makers and other stakeholders in the business case.

2.4.2.2. Housing/Building Maintenance Types/Approaches

In housing estate or building maintenance management tactics, different types of maintenance approaches have arisen for the maintenance management of social housing or other projects after completion and commissioning. This will rely more on the decision of the estate manager or maintenance manager as to which type of maintenance management will apply, and aligned with the policies to achieve the aim, objectives and accruable benefits. But, this again can only be done after a consideration of the nature and characteristics of the housing estate and the available resources. For instance, whether to use a preventive or routine maintenance approach so as to meet the demand of the end-users or owner when failure occurs in the housing estate. Despite this, Lee and Scott (2009) opined that the major common factors limiting the choice of a maintenance management strategy are: health and safety; value; law; quality; and fitness for use. If these policies and objectives are properly understood, then these factors should not unduly influence the determination of approach. However, there is no one generally accepted format that will benefit all maintenance management scenarios; rather any format adopted in a particular case should be customized to the specific requirements and programme of a housing estate owner or organisation such as the Federal and State Government in the case of this present research study.

There are two basic housing estate or building maintenance management approaches: ‘‘planned’’ and ‘‘unplanned’’ maintenance. The planned maintenance management approach, however, is subdivided into other maintenance management approaches as shown in Figure 2.4 shown below.

- **Planned Maintenance Management (PMM)**

This is maintenance organised and carried out with forethought with the use of records to a predetermined plan (RICS, 2012; Queensland Government, 2012). This maintenance management approach can be described as: Planned Preventative Maintenance Management (PPMM); Planned Corrective Maintenance Management (PCMM); Planned Routine/Refurbishment Maintenance Management (PRRMM); and Planned Reactive Maintenance Management (PRMM).

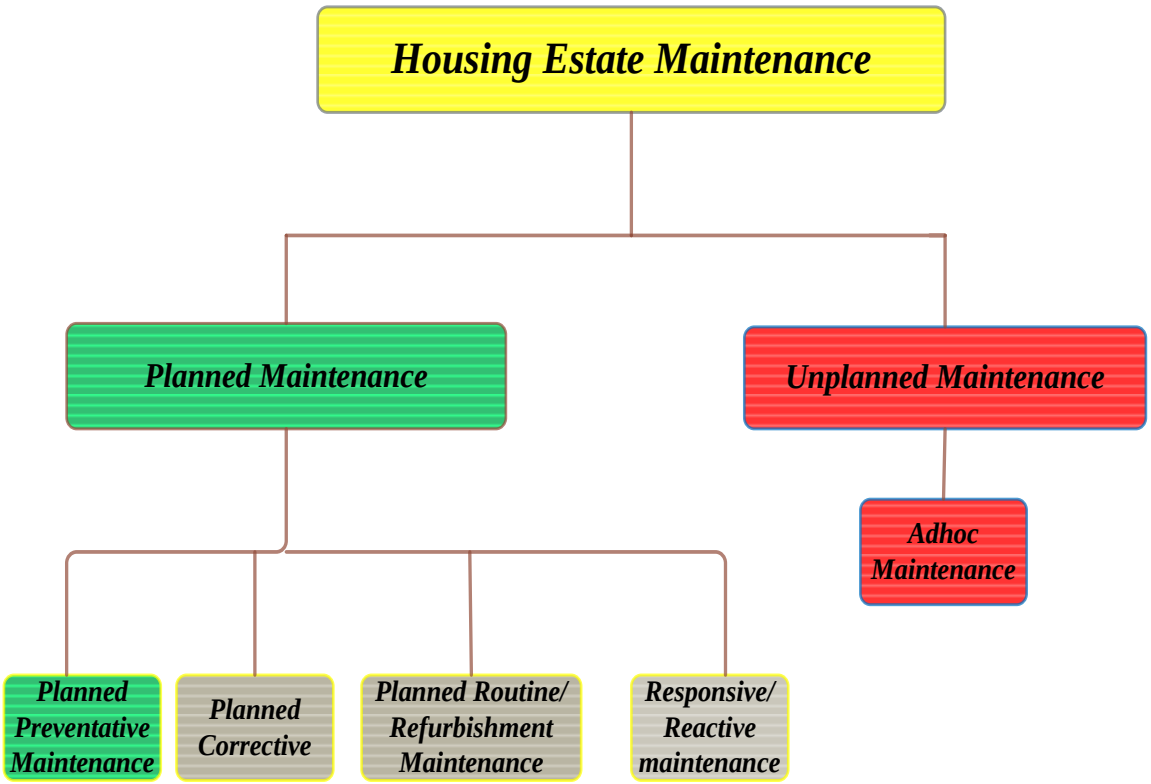

Figure 2.4 Housing/Building Maintenance Management Types

- **Planned Preventative Maintenance Management (PPMM)**

These are maintenance works organised and carried out at a predetermined planned time or period or interval with the intention to reduce the risk of failures or functional, economic and physical obsolescence to the building. The maintenance work here is deterministic in nature and is usually carried out accordingly. Wood (2003), RICS (2012) and Queensland Government (2012) contended that this is the better and most effective housing estate or building maintenance management approach as compared against the other alternatives since it reduces the frequency of building breakdown and failures. But, Spedding (1987) asserted that this maintenance management type is ineffective as it makes too early and unnecessary replacement of components of a building. Also, Lee and Scott (2009) while concurring with Spedding's (1987) argument, criticise the PPMM strategy by analysing its problems as follows:

It makes too early and unnecessary replacement;

It lacks empirical data to support its efficiency and effectiveness;

The relationships between PPMM and the organisational objectives are not known;

That, contradictions within PPMM exists and suggestions to better use of alternatives in order to optimise maintenance resources.

Despite the detractors' reasons, the present research study still upholds the assertion made by Wood (2003) as earlier outlined. Wood (2003) further suggests that this maintenance management approach is always conceptualised, forecasted, planned, budgeted and communicated to all concerned on time such that the issues of physical, economic and functional obsolescence is abated in housing estate or building. It is agreed and accepted in line with an organisational business case before implementation.

- **Planned Corrective Maintenance Management (PCMM)**

This involves the restoring of a facility after failure to an acceptable standard. It may include a detailed cost and mapped out programme of work foreseen in the forthcoming year and to be carried out at a particular time of the year (RICS, 2012). The major concern about this maintenance management approach as against PPMM and other alternatives is that it is only carried out when faults occur. This could lead to other faults occurring in the other parts of the housing estate or building without the maintenance personnel understanding, thereby putting the entire building, tenants and owner at high resource risk.

- **Planned Routine/Refurbishment Maintenance Management (PRRMM)**

This is a planned maintenance management process that is occasionally responsibility as a routine job necessary to maintain houseplant such as lifts, boilers, etc. in a safe and efficient operating condition (RICS, 2012). Many times manufacturers of the houseplant and equipment normally endorse the regularity and nature of the jobs to be supported out and this is complemented by regulatory requirements for checking where there is a health and safety dimension such as the case of the lifts and boilers in houses/buildings. In this maintenance type circumstance, it is comparatively mutual and good to place individual agreements for these services with specialist providers, and occasionally might be regarded as planned preventive maintenance agreements (RICS, 2012).

- **Planned Reactive Maintenance Management (PRMM)**

This is the day-to-day repairs to a building or house to keep the house or building and the built environment in a tenantable condition. The tasks typically consist of rectifying minor faults and failures, such that their occurrence may not have health and safety implications. According to the RICS (2012), ' they are generally low value but there may be a case that a substantial volume of them will arise, and that the end-user's perception of the quality of maintenance of the built environment will be very sensitive to the quality of delivery of this service'. As such, it may be appropriate to divide the expected scope of the works into general maintenance management of building and services and then contract with professional organisations to provide this service on express arrangements. But, because the tasks are generally low value, some housing estate maintenance management service providers have their in-house potential such that they are able to deliver all activities with equal efficiency.

- **Unplanned Maintenance Management**

This is a maintenance approach that involves the carrying out maintenance works/tasks without any previous anticipation of a component failure in a house/building, especially issues resulting from an unforeseen breakdown such as housing/building disaster. This warrant the requirement of an ad-hoc maintenance management response when it is certain cannot longer be ignored or delayed for, before repairs can take effect.

Above all, whatever the policies, objectives and strategies an organisation is willing to adopt in the maintenance management of the building such as for social housing estates, the availability of resources and how they are utilised for the task is a significant determinant. El-Haram and Horner (2002) indicated that this utilisation cost is directly proportional to the

material and human costs of the maintenance management approach. It would also follow that the costs of maintenance are directly or indirectly proportional to the policy, objectives and strategy towards maintenance management. The next section defines what constitutes maintenance costs in maintenance management of buildings as relevant to social housing estate maintenance management in the context of this present research study.

2.4.3. Housing Estate/Building Maintenance Management Costs

According to El-Haram and Horner (2002,) a maintenance management cost is all money spent on keeping the building or estate up to an acceptable standard. Therefore, it suggests that the maintenance management cost will entail costs resulting from the routine repairs, preventive and refurbishment tasks in a house. It is directly related to the material and human resources such as labour, plant, materials, tools, and indirectly related to the cost of management and staff administration and overhead costs needed for the successful implementation of the task. According to El-Haram and Horner (2002, p.116) it is mathematically defined as thus:

$$M_c = DM_c + IM_c$$

But, DM_c and IM_c is given as:

$$DM_c = C_l + C_m + C_e$$

$$IM_c = C_a + C_o + C_p$$

Therefore: $$Mc = (C_l + C_m + C_e) + (C_a + C_o + C_p) \text{ ----------Eqution (1).}$$

Where:

M_c is total cost of maintenance work;

DM_c is direct cost of maintenance*;*

IM_c is indirect cost of maintenance;

C_l is cost of labour; C_m is cost of material and spare parts; C_e is cost of equipment and tools; C_a is cost of management and administration; C_o is overheads cost; and C_p is cost of penalties or loss of revenue.

However, for this research specific context, the mathematical equation (1) above is re-defined as below since the earlier equation is assumed to have failed to consider or accept the cost of users' behaviour and the environment to a housing/building maintenance management costs. Hence, this reseach add these later factors and the equation became thus:

$$MC = DM_c + IM_c$$

$$MC = (C_l + C_m + C_e) + (C_a + C_o + C_p + C_b + C_c) \text{ -------Equation (2).}$$

Where: C_c is the cost of user behaviours *and* C_b is the cost of Environments.

From the definition, it is vital to properly assess the variables of DM_c and IM_c as an increase in their value after summation escalates the total M_c, thereby posing a serious challenge to the available resources. This will become worst when the resources available for maintenance management works are limited or in the scenario of a budget constraint which sometimes is common to social projects such as social (public) housing estate projects. However, the maintenance management costs can be reduced by a reduction in the total maintenance work to be undertaken by strategically assessing and adopting the following measures such as: selecting the most appropriate and cost-efficient and effective maintenance approach; reducing the total duration of maintenance work through accessibility; good planning and staff training; building new houses taking cognisance of reliability, durability, maintainability and building life costing at the design phase; and finally trying to control or reduce other internal or external factors which will affect the housing maintenance management cost (RICS, 2012; El-Haram and Horner, 2002). But, in order to achieve maintenance management cost reductions, certain factors' effects must be eliminated completely. Even, where good building maintenance management practices exist, (which remains as a major consideration for sustainability of social (public) housing management) maintenance management costs keep fluctuating. The major influences to these are according to: the design and construction; contractor's education; experience; and compliance with the specifications and standard (Hassanain, *et. al.,* 2013). The next research section briefly identifies factors that fluctuates social housing estates maintenance management costs. These are considered under the following headings:

2.4.3.1. C_l = Cost of Labour

For post-construction sustainable management of social housing estates, skilled employees are very important for maintenance management works. Educated employees can perceive the transmitted information or instructions and build a relationship with others (Shear, 1983). They should be available to perform the task, using the right tools at the right time and with this, delays to maintenance works are eradicated. But, whilst recognising that, there are also some maintenance works that may not require a skilful person to perform, however, the emphasis here is that the knowledgeable employee would direct or perform work according to past experience and skills. This will assist to improve the quality of work, minimizing cost and reducing work time span. Although, having the right tools, experience and skill does not mean the job will be performed properly (Al-Khudair, 1988), it is a fundamental basis to expect that the work will effectively be done and that subsequent cost increases would be eliminated or minimised.

Another concern to increasing maintenance management costs is as a result of defects and faults caused in the initial construction phase due to a lack of knowledgeable manpower. Mills (1980) suggests that a lack of knowledge is the major causes of differential settlement in building that leads to cracks and other defects. As such, careful participation and follow-up in maintenance management works is significant as this may avoid putting the health, safety, comfort and well-being of the tenants at risk (Al-Hazmi, 1995). Above all, specialized and well-experienced maintenance contractors are important so as to perform maintenance management work effectively (Al-Hazmi, 1995).

2.4.3.2. C_m = Cost of Material and Spare Parts

Selection of the right materials reduces future potential maintenance works rather than utilising the wrong material even though its price, quality and durability may be high (Ihuah and Benebo, 2014). Using the wrong material will increase the maintenance management costs. Merritt (1975) cited in Al-khatam (2003) opined that the selection of substandard or incorrect materials during the construction stage will cause more problems during the maintenance management stage. Therefore, the selection of the right materials that is in compliance with the performance specification requirements is encouraged as future maintenance management costs is minimised. Encouraging the consideration of cost-in-use and durability of materials is imperative as it ensures the sustainability of the benefits accruable from the housing estate. Understanding the nature and behaviour of materials in houses and making allowance for the differing thermal and moisture movements of materials in combination is useful in managing the housing estate building. But, Lee, (1987) indicates

that were such is not understood, it will adversely affect a buildings deterioration, functional performance or appearance.

This should provide the basis of non-usage of cheaper/sub-standard materials, as adopting the attitude of using sub-standard material for maintenance work will eventually end up increasing the costs and reducing the working life as would have been if the more appropriate material was used. However, one challenge to the management team is the increasing introduction of new materials with the implied justification that it would serve the same purpose (from the producer but most times untested for guarantees), which Mahmoud, (1994) suggested will bring an unending causes of maintenance work problems in housing estate building.

2.4.3.3. C_e = Cost of Equipment and Tools

Buildings or housing estates should be designed in such a way as to be simple for maintenance management and such that it allows maintenance work to be carried out easily, quickly and economically. It also ensures that major replacements are often avoided while minor repair can be carried out without difficulty. But, where the design of the estate is poor minor problems will get bigger and become major problem. As a result, Mills (1980) suggests that designers should always avoid permanent fixing of elements in the building when they need continuous maintenance. Al-Shiha (1993) indicated that certain movement of building components causes building cracks due to poor structural designs. These cracks are sometimes initiated by faulty design that may have started at an early stage where the designer fails or ignores to provide allowances for movement, such as the contraction and expansion movement in buildings. In most cases the attempt is to correct the problem costs much more than the total costs of providing a new house or building.

Another serious issue is the low concern regarding failure maintenance attitudes applied in some organisations. It is required that every building or house design should be easily maintainable (RICS, 2012; El-Haram and Horner, 2002). Maintainability is the effort that provides customers with products that can be maintained by a satisfactory balance of short time, low cost and minimum expenditure on support resources, without adversely affecting the product's performance or safety characteristics (RICS, 2012). Maintainability is one important aspect of design, along with reliability, human engineering, components engineering and others. In the design and planning stage, maintainability requirements are defined and translated into design criteria, and thereafter applied into the design to ascertain the desired functional and physical features of the system. While these design characteristics

are measured to verify quantitative goals and then translated into improvement of design of the system, it is better to consider maintenance analysis during the design stage; otherwise severe problems can be caused regarding function, performance, and safety of the structures which may require total system replacement (Patton, 1988). But, while measuring the design features quantitatively, it is much better to also consider and measure it qualitatively. The use of an inappropriate costing instrument in maintenance management tasks creates another challenge in the accuracy of the total maintenance management costs to a building or housing estate. The Life Cycle Cost Techniques (LCCT) as opined by Lee (1987) provides a means of identifying high cost areas and evaluating changes that will reduce these total costs. It is used as a determinant to the most economical way of meeting a need, for example, space in the building and the built environment at large. While assisting in developing the most economic plan shape, structural form and internal layout, its deterministic contribution to how the building or housing estate owner's money is distributed during the life period of the estate cannot be ignored.

Neither can the LCCT impact on identifying the design features, components and finishing's that have the lowest total costs to be underrated. But, when LCCT is not applied at the earliest possible time in the design or when the faults has occurred, the great is the possibility of not saving and lowering the committed costs to the housing estate or building maintenance management. It will be much more effective and efficient to apply the appropriate technique as the LCCT since it helps to reveal the total maintenance management costs over the life of a system including: cost of acquisition; operation; and maintenance of a system; over the life of the buildings (Lee, 1987).

Poor quality control in the procedures used by some maintenance management experts to control, inspect, test and record procurement, fabrication and installation in conformance with contract document is unprofessional. This could be as a result of a lack of capacity building but `it is typically better to have a thoughtful quality control programme set out during the construction phase, and thereafter continue for the post-construction management stage. It is within this background that Mahmoud (1994) opines that the presence of proper and strong quality control procedures is important so as to assure that the components are acquired, and/or maintained as per the contract documents during the maintenance management stage. Quality control is used to control, inspect and record all activities in accordance with the agreement requirement, construction procedures and post-construction management measures. In this case, fewer defects are likely as well as requiring less maintenance management tasks than when such is not considered or considered but always overlooked.

Nonetheless, unfamiliarity with effective maintenance techniques by maintenance management staff or the use of inappropriate methods cannot be ignored as such failures increases the cost of the particular work. Al-Khudair (1988) suggested that this may also have an adverse effect on the long-term durability of the building and the cost of subsequent maintenance management tasks. Therefore, exposure to the most effective and efficient methods is necessary as well as the understanding of the external and internal housing estate environmental condition. Liska (1988) asserted that unfamiliarity with the local conditions such as in the biological factors can harm a house or building which then leads to continuous maintenance to the building. While, Al-Khudair (1988) contends that familiarity with the housing estate site conditions, may abate the crack problems in buildings than when it is ignored by the project designer and manager. They could also hinder the proper identification of the true causes of the defects, which sometime in attempts to ratify it will worsen the building or housing estate condition. On the other hand, overlooking understanding of the social and cultural barriers would affect productivity (Al-Juwairah, 1997). Therefore, it is much better for the designers to examine carefully, to consider all the credible causes; by process of exclusions as to identify the true causes and sources of potential defects, and then decides on appropriate corrective accomplishment.

2.4.3.4. C_a = Cost of Management and Administration

Maintenance management is an effective tool for achieving a high standard of maintenance work. If such management is lacking, it will lead to a cumbersome, time consuming, and most likely fail maintenance work. Mahmoud (1994) as such contends that maintenance management's responsibility needs to be formulated as long-term strategic plans to meet those needs. In so doing, a maintenance management manual is required, whose objective is to inform all building users with a common system of maintenance standard information recording and retrieval for the proper guidance of maintenance operatives, building owners, tenants, and for costing, and general maintenance planning. According to Mills (1980), it would act as a common part of the building process and not as a series of isolated events that takes place after the completion of the housing estate building works.

Communications between maintenance contractors, clients, resident/tenants and the external estate community is useful in managing social housing estate maintenance works. The proper communication channels between all the stakeholders ensure that the contractors are going to perform the work according to the stated conditions and specifications in the contract documents. Also, it enables the maintenance contractors to respond to client's repairs and maintenance needs in a reasonable period of time. Not occupying the housing estate after

completion or abandoning or allowing it to be vandalised pose serious challenges to housing problems of shortage and lack of access. This could also detract from owner giving enough attention to the maintenance work required within the housing estate. Mahmoud (1994) opines that if a housing estate and its facilities are not in use, they should be maintained in order to avoid future unplanned costly maintenance.

It is important that social housing (public) estate owners, when they prepare the annual budgets, include sufficient financial allocations for maintenance work, as it is a critical and needed function. Al-Sultan (1996) argued that the absence of sufficient/adequate financial support and provision for the housing maintenance management work tends towards the housing estate not being maintained properly; and that this will detract from the sustainability of the housing estate returns/benefits. If a sufficient budget is made available, poor financial control on site on issues such as: labour productivity; material availability; material waste; efficient and effective maintenance methods; using effective tools and equipment; and good maintenance planning may still detract from the condition and appearance of the housing estate. Therefore, the maintenance management team should be aware of these factors in order to achieve better financial control on housing maintenance work within the built environment (Al-Juwairah, 1997).

2.4.3.5. C_c = Cost of Environments

Patton, (1988) opined that weather conditions are often responsible for chemical actions on building materials such as in the case of atmospheric pollution associated with rain, causing the rapid deterioration of some materials and components of houses. Because of the challenges posed by the environment, most small and medium-sized contractors in the local market prefer to carry out new construction in addition to a little maintenance work. This is because it is more straightforward and offers potentially higher profit.

Another concern is on the environmental performance specifications and standards document that clearly and accurately describe the essential technical requirement for materials, which will determined what performance requirements have been met. Standards and specification documents are extremely important to building maintenance, as it constitutes a schedule of instructions to the contractor and prescribes the materials and workmanship requirement. Therefore, Seeley, (1987) opines that having a uniform specification and standards will ease the construction process as well as maintenance work. It is, therefore, very necessary to have on uniform standard and specification requirements to be followed throughout to avoid

confusion and loss of skills in trying to understand the environmental procedures called standard.

2.4.3.6. C_b = Cost of Social Housing Estate User Behaviours

Many housing estate users often pay little attention to keeping their house in good working order and are surprised when they fail to give the service they expect. As earlier mentioned, housing estates or buildings start to deteriorate from the moment they are completed whether in-use or not. But, the extent of time this process of decay takes would depend on the care the owner takes starting from the design stage, into the construction phase, and onto the post-construction maintenance management stage. When the housing estates are completed, the owner should start using the housing estate and the facility in a proper way as misuse of the housing estate and the infrastructure could result in additional damage, and would need additional maintenance work to be carried out, which will cost much more (Mahmoud, 1994). If the owner is not using a preventative maintenance management approach, this could constitute major sources of maintenance work in the long run, but it could have been avoided. For instance, the attitude of executing maintenance works only when it becomes a matter of urgency or only when disrepair occurs in the housing estate building.

2.4.4. Minimising Social Housing Estates Maintenance Management Costs

In reality, the gradual deterioration in housing components is inevitable, but the speed at which it occurs can be minimised and the eventual failure of the totality of a house or building, can be avoided or accelerated according to the way in which it is maintained. At the same time, leaving a minor problem, which requires a maintenance action until it becomes worse is poor practice of maintenance. This will definitely cause maintenance work costs to build-up to a point that the owner cannot bear and as such may lead to abandoning the housing estate or house. However, the three themes or term are separated as there is a range of trade-offs that can be achieved within the themes or terms to minimise the internal cost of each term. Then the terms can be combined to achieve and improve the overall minimisation of the total housing estates maintenance management cost. Therefore, the Maintenance Management Cost ($\mathbf{M_c}$) should be minimised by using the equation (3), which is determined from equation (2) above:

$$M_{cmin} = \sum_{min} DM_c + IM_c$$

$$M_{cmin} = \sum_{min} \left| \sum_{min} \left| C_l + C_m + C_e \right| \right.$$

$$+ \sum_{min} \left| C_a + C_o + C_p \right| + \sum_{min} \left| C_c + C_b \right| \quad \text{-------- Equation (3).}$$

2.5. STAKEHOLDER RELEVANCE AND MANAGEMENT

In recent times, many challenges have been encountered on public projects post-construction management which have eventually led to failures (Franks, 2006). At the same time, a lack of stakeholder satisfaction is suggested as the main reason for the failure in such public projects management (El-Gohary, *et. al.,* 2006).

Therefore, the need to determine and incorporate stakeholder opinions as to better facilitate the management of a project after completion that meets the needs of those stakeholders' is an imperative in this research. The understanding of the concepts that underpin stakeholder involvement is an essential step towards creating a strong involvement to help manage social (public) housing estates in a sustainable manner. However, the main inhibiting factors affecting the stakeholders' involvement as identified in El-Gohary's, *et. al.,* (2006) work are: the project beneficiaries were unaware of the concepts behind the development; not being well-informed about the project and its benefits; and not given access to detailed information contained in the project proposals; a lack of transparency, accountability and good governance in the processes used to award project contracts to a contractor (El-Gohary, *et. al.*, 2006).

Reed (1999) contends that establishing what makes up a stake is one of the primary chores of the theory of stakeholder management and the best first step is to define the term. But, the concept of stake and stakeholder is used in different ways such as: descriptively; instrumentally; and normatively (Donaldson and Preston, 1995). The descriptive concept is used when trying to establish the empirical relationship between the activity of an organisation or institution and an affected party; emphasising much more on those who are directly affected by the activity of the housing estates management institution. The instrumental concepts concerns establishing those who may potentially affects the activities of an institution or organisation (Freeman, 1984) in the project development and post-construction management. The normative concepts concerns in determining the moral principles behind the stakeholders and their potential effects in project development and improvement (Friedman and Miles, 2006).

El-Gohary, *et. al.* (2006) and Baker (2009), opine that a **''stake''** is an interest, right, ownership, or share, in an undertaking, and which are categorised as in Figure 2.5. Baker (2009) further suggested that the right can be a moral and a legal right, or a moral right may be established through a legal right.

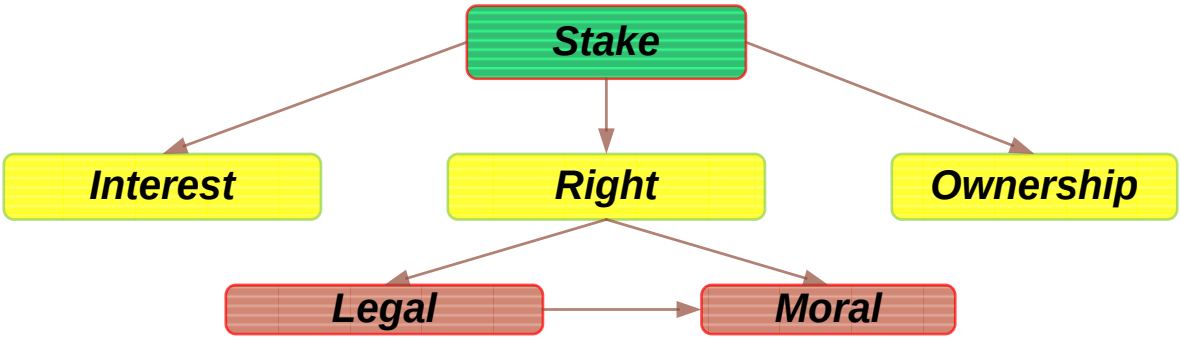

Figure 2.5: A Definition of a ''Stake'' (Adapted from Baker, 2009)

The work of Reed (1999), suggests that defining stake using the concepts of non-normative analysis in a normative theory of stakeholder management without further query raises concerns and imprecision in the definition; such that some account of the normative force that the term 'stake' carries in stakeholder theory is lacking. The study further argued that in a normative stakeholder management theory, a stake is not just an interest and does not imply only prudential compulsion, but are unspoken obligation to compel an established standard of obligations. In this scenario and rationale, Reed (1999) opines that the recognized benchmark premise of stakeholder management requires a definition of stake and stakeholder that builds clear sources of their normative force. As a result, a stake is defined as 'an interest for which a valid normative claim can be advanced' (Reed, 1999). Since, stake in simple terms is an interest, then, what is a 'stakeholder', in the normative premise of stakeholder management. A 'stakeholder' is any individual, group, government, societies, neighbourhoods, institutions, organisations that possess a stake in a development (Baker, 2009; El- Gohary, et. al., 2006; Mitchell, et. al., 1997; Bryson and Crosby, 1992). However, Freeman (1984, p.46) in his seminal work defines stakeholder as ''any group or individual who can affect or is affected by the achievement of the organisation's objectives''. This definition remains the extensively adopted and recognised definition of a stakeholder in the stakeholder management theory literature.

The process of identifying who are the stakeholders or have a stake and whom should attention be paid to in social housing estates management for sustainability, the issue of normative and descriptive stakeholder identification becomes necessary (Mitchell, *et. al.*, 1997). However, according to Mitchell, *et. al.* (1997), stakeholders are identified as either primary or secondary stakeholders. Primary stakeholders are those stakeholders that have a direct stake in the project and its success. On the other hand, secondary stakeholders are those stakeholders that have a public or special interest or stake in the project development success

and its continuity. In addition, they contended that stakeholders' identification is attributed to having one, two or all three of the following features in their interest, namely, power, legitimacy and urgency.

Power according to the seminal work of Weber (1947) is the probability that one person within a social relationship would be in a position to carry out his own will despite resistance. In contributing to the debate, Pfeffer in his seminal work (1981) asserted that power is the relationship among social actors in which one social actor called ''A'' can get another social actor called ''B'' to do something that B otherwise would not have done. Mitchell *et. al.* (1997) agreed with Pfeffer and Weber's assertions, but, argued that power is tricky to define and yet not difficult to recognise, however, it borders much on how the power is exercised to bring about the desired goal.

However, on **Legitimacy,** Mitchell, *et. al.* (1997) suggested it is a socially accepted and expected behaviour, which often is coupled with implicit power when people attempt to evaluate the nature of relationships in society. Therefore, it could be suggested that having legitimacy means having power which when merged together creates authority, but, on the other hand, those who might have legitimacy may not necessarily have the power to influence as both have distinct characteristics in stakeholder identification, attitudes and management.

Urgency is the degree to which a stakeholder claims for immediate attention (Mitchell, *et. al.*, 1997). Therefore, it provides if a relationship or claim is time sensitive in nature and also, if the relationship or claim is significant to the stakeholders. Furthermore, Mitchell, *et. al.* (1997) opines that within the confines of power, legitimacy and urgency of the stakeholder's classification, other stakeholders attributes can be identified as in Figure 3.6 below. These are: (1) Dormant stakeholder; (2) Discretionary stakeholder; (3) Demanding stakeholder; (4) Dominant stakeholder; (5) Dangerous stakeholder; (6) Dependent stakeholder; (7) Definitive Stakeholder; and (8) Non-stakeholder.

The D1-7 stakeholders and N8 stakeholder are grouped into latent and expectant stakeholders. The expectant stakeholders are those stakeholders having only two of the attributes mentioned earlier, representing D4, D5 and D6. While, D7 is the definitive stakeholder; and it is this unique group that possesses all the three attributes of a stakeholder as shown in Figure 2.6. The latent stakeholders are those having only one of the attributes of either: power; legitimacy; urgency; and as such include D1, D2, and D3 as shown in Figure 2.5 below. However, those individuals or entities' having none of the attributes are regarded as the non-stakeholder (N8) as shown in Figure 2.6 below.

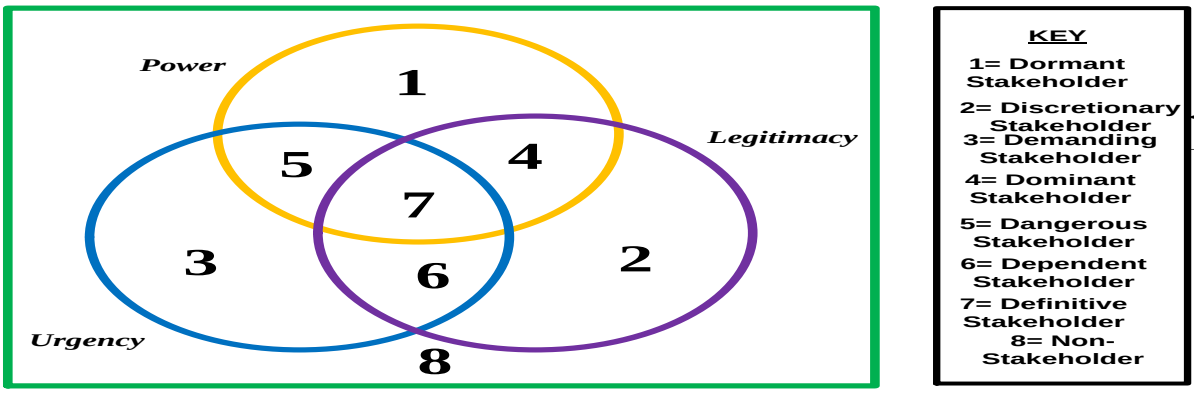

Figure 2.6: One to Three Stakeholder Identifications (Adapted from Mitchell, et. al., (1997)

The dormant (D1) stakeholders are individuals or entities with only power and use it to influence management decisions, but in some cases, because they do not have the other attributes, their power becomes unused. Mitchell, *et. al.,* (1997) opine that this class of stakeholder have the potential to acquire one of the other attributes and if they do, they will become more important to manage by those concerned. The discretionary (D2) stakeholders possess only legitimacy. This is the group that poses no difficulty to management and in this scenario, Mitchell, *et. al.,* (1997) stated that absent power and urgent claims is of absolutely no pressure to management. They are also regarded as business charity (Carroll, 1991). The demanding (D3) stakeholders are those with urgent claims only but have neither power nor legitimacy. This set of stakeholders because they only make urgent claims without the claim being legitimate and not having the power to press it; they are described or labelled as 'mosquitoes buzzing in the ears' of managers or management (Mitchell, *et. al.,* 1997). A dominant (D4) stakeholder possesses power and legitimacy and as such their influence in the management of any project is certain. Their claims are a matter of concern to managers since the claim is legitimate and the ability to chase it is there because of power. Dependent (D5) stakeholders have urgent and legitimate claims but lack power to pursue the claim. Because of this, they are always looking for an advocate to mediate their claims, hence their dependence on others. Dangerous (D6) stakeholders are characterised with having power and urgency but no legitimacy to their claims. But, since they have power and their claim is always urgent, they can turn to become violent.

2.5.1. Stakeholder Assessment and Identification Methods/Strategies

Assessment which according to the Macmillan Dictionary (online, 2014) is defined as "*the process of making a judgment or forming an opinion, after considering something or someone carefully"*. Therefore, the identification of the relevant stakeholders to project development

and post-construction management as earlier mentioned can be so dangerously momentous because of the technical, social-economic, political, and especially, the operational purpose of a project such as to social (public) housing estates (Medeiros de Araujo and Bramwell, 1999). The assessment method of being identified or not being identified as a relevant stakeholder is indispensable to the whole planned process of effective involvement in order to achieve the sustainability expected in the social (public) housing estates units and their benefits after production. The conceptualized diagrammatic representation of Figure 2.7 revealed five steps to follow in order to identify the relevant stakeholders' that needs involvement/inclusion in project development as well as in the post-construction management activities for sustainability.

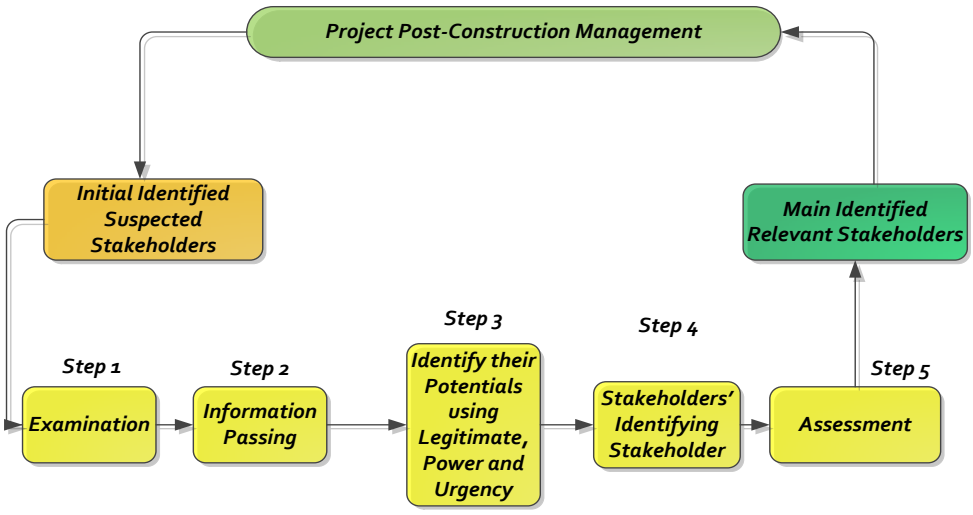

Figure 2.7. Relevant Stakeholders' Identification Approaches/Strategies

The *first step* strategy to adopt is to identify the relevant stakeholders for involvement/inclusion in post-construction management of social (public) housing estates units or other project development and management, using the criteria of: legitimate; power; and urgency (Mitchell, *et. al.*, 1997; Piffer, 1948; Waber, 1947); is by examining all the initial identified suspected stakeholders (Medeiros de Araujo and Bramwell, 1999; Boiko, *et al.*, 1996). This approach allows an evenly collaborative representativeness of the relevant stakeholders' so that all the post-construction management needs and plans are well articulated, and would not result to the proposed post-construction management activities being rejected or major activities or issues being ignored. This occurrence may lead to the rising problem of some stakeholders been excluded or not involved at the earlier stages of the post-construction management or of the project development and management (Finn, 1996). Further, not ascertaining if the stakeholders involved are those with the legitimacy, power and

urgency potential to influence positively the sustainability of the post-construction management efforts and thereafter enhance the benefits of the project could be a substantial threat (Warner, 1997). Hence, the examination of the entire spectrum of initial suspected stakeholders is indispensable to the sustainability of project benefits after delivery and during their post-construction era.

The *second step* is the information passing stage. It underscores the passing of the major information assessments about the potentially relevant stakeholders to the stakeholders expected to be included in the post-construction management activities so that their understanding, awareness and knowledge of the other various stakeholders' interests and opinions can be ordered and understood (Finn, 1996). This stage process would further assist the stakeholders to recognise the best tactic to apply and ensure post-construction management success, such as spotting stakeholders' groups that may be supportive, opposed or neutral to the general main interests of the post-construction management (Medeiros de Araujo and Bramwell, 1999).

The *third step* is the process of ascertaining those stakeholders' with legitimate and significant opinions but whose capability needs to be raised and involved so that their views can be hard and incorporated in the collaborative decision-making of the post-construction management efforts and activities (Carroll, 1993; Medeiros de Araujo and Bramwell, 1999). For example, the residents/tenants or some of the housing authority management staff of the social (public) housing estates units may be lacking technical knowledge on the best approach to adopt, but their capabilities can be raised through meetings, education and skill training.

The *fourth step* is the *"stakeholders' identifying stakeholders"*. This is the stage where the already involved stakeholders are asked to identify other suspected stakeholder that might be affected by the post-construction management activities and whose interests are indispensable to the project benefits sustainability (Medeiros de Araujo and Bramwell, 1999). This could be either through potential stakeholder's interviews or other approaches deemed appropriate, and it will assist to understand those stakeholders that might need involvement and/or inclusion at the early planning stage of the post-construction management activities of the social (public) housing estates. This, Mark and Shotland (1985) recognised as reliant on the judgmental knowledge of the interviewing stakeholders themselves, building on a snowball strategy which: Medeiros de Araujo and Bramwell (1999); Finn (1996); and Rowley (1997); recognised as the best method to use in the circumstance.

The *fifth step* is the assessment stage. This is the stage where the relevant stakeholders' are assessed and re-assessed so that the main relevant stakeholders for involvement and integration are placed on plan indicating where their key involvement and relationships in the post-construction management activities are needed. The purpose of the evaluation and re-evaluation is to determine the interdependence between the various stakeholders, their positional influence and behaviour that would affect the project benefits and the network between them (Marin and Mayntz, 1991; Rowley, 1997; Medeiros de Araujo and Bramwell, 1999).

An example of the relevant stakeholders in the social (public) housing estates post-construction management is as shown in Table 2.4.

Table 2.4. Example of Stakeholders in Social (Public) Housing Estates and their Categories

Stakeholders	***Description***	***Social (Public) Housing Estates Stakeholder and their Categories***
D1	Dormant Stakeholder	Federal and State Government; Management Team/Decision Makers;
D2	Discretionary Stakeholder	Federal and State Government; Management Team/Decision Makers; Tenants/Residents; Professionals/Contractors.
D3	Demanding Stakeholder	Tenants/Residents; Management Team/Decision Makers; External Housing Estates Community Representatives; Professionals/Contractors
D4	Dominant Stakeholder	Federal and State Government; Management Team/Decision Makers;
D5	Dangerous Stakeholder	Tenants/Residents; Professionals/Contractors. External Housing Estates Communities Representatives.
D6	Dependent Stakeholder	Federal and State Government.; Management Team/Decision Makers;
D7	Definitive Stakeholder	Federal and State Government; Management Team/Decision Makers;
D8	Non-Stakeholder	Others outside these groups.

Above all, it is proposed that no effective and successful post-construction management approach in order to sustain social (public) housing estates when several individuals, and/or entities, having stake in the project are not identified and assessed; particularly, the stakeholders that may influence the realisation of the deemed improvements. Identifying, assessing and classifying the stakeholders into their appropriate group may assist to determine

the level of involvement/participation that can be recognised for that stakeholder group. Therefore, the research in the context, propose that the five assessment steps and/ or stages stated earlier can be promoted in post-construction management for the expected benefits sustainability in the social (public) housing estate units after their delivery into the built environment.

2.6. ESTATE MANAGEMENT- PRINCIPLES AND METHODS CONCEPTUALISED

The principles and methods adopted for the successful management of any estate such as social (public) estates largely depends on the standpoint and personal qualities of those charged with the responsibilities of managing the housing estate (Banfield, 2005). At the same time, issues such as: the unique characteristics of the housing estate; the resources available; and the understanding of built environment challenges; in the housing estate are significant (Nwanekezie, 1996; Scarrett, 1995; Stapleton, 1994). In this sense, it is opined that the success and sustainability of the social (public) housing estate benefits will be gauged on these sets of issues. But, some of these issues fall within the sustainability dimensions of social, economic and environmental contentions. In order to draw a link between: sustainability; stakeholder management; and housing maintenance; to estate management principles and methods, it is necessary to understand the meaning of estate management. In this case, the definition of Estate Management will be considered in two contexts: ``Estate''; and ``Management''; and thereafter ``Estate Management''.

2.6.1. Housing Estate Definition

An estate is a large piece of land and its features are owned by a person or group of people or nation (Nwanekezie, 1996). It is also considered as an area of land on which development of a particular kind has taken place. In addition, it means a person or nation's total possession and as such includes: commercial estate; industrial estate; residential estate; etc. Unger (1974) cited in Nwanekezie (1996) suggested that an estate is the interest that a person, or a group or a nation holds in land. This suggests that it is a legal entity denoting the character and quality of rights that an owner possesses in an estate rather than the estate per se (Thorncroft, 1965). However, for the estate management profession purpose, it is regarded as a unit of control defining the degree of interest held on the estate; and the modes of ownership and authority for which the owner has over the estate, such as: a freehold estate; or a leasehold estate; and/or a right of occupancy (Nwanekezie, 1996).

2.6.2. Characteristics of a Housing Estate

Estate as previously defined is an interest in land owned either by an individual or organisation. This may suggest that the owner of an interest in a housing estate has a right to control an interest in a way that gives optimal return. But, the management problems and options designed for housing estate continuity is very important to the nature or character of a housing estate. As such, the housing estate characteristics defining the management challenge have a number of context specifics as suggested by Nwanekezie (1996) and is summarised as follows:

2.6.2a. Physical Identity

These are the humanly made and natural improvements such as the location, the size, shape, the geology etc. of the housing estate. In this sense, it could be suggested that, the physical features of housing estate are related to its management problems posed, but the estate management profession, look at the shape and size of the housing estate. The larger the housing estate, the bigger the management related problems, while the smaller the shape and size of a housing estate, the less the associated management challenges (Banfield, 2005). Similarly, it is comparative to understand that the degree to which land in its natural state has been developed also contributes to and forms part of the physical characteristics of the estate. In the Niger Delta, which represents the southern section of Nigeria, the cost of social housing development and management are suspected to outweigh the northern section of Nigeria. This may result because of the differing geological natures of the regions and the market forces of demand and supply created by high taste, high completion and constantly increasing population.

2.6.2b. Economic Character

The economic character of a housing estate can be seen in five ways, though, it is argued as an economic process governed by the principles of management (Nwankenezie, 1996). The housing estate economic character includes: the use or purpose of an estate; for instance, whether the estate is for investment or occupation purposes; the extent to which the estate is developed or undeveloped and can profitably absorb capital investment; the debt-yield capacity of an estate; that is, how much the estate owes or spends and how much it gives to the holder of such estate; the income derived from the estate and the return accruable; and its functional status particularly the physical/functional obsolescence (Nwanekezie, 1996).

2.6.2c. Legal Status Character

This shows and determines the degree, extent and quality of control that an estate owner has on housing estate. A freeholder of an estate for instance has greater rights, control and powers for the management of an estate than a leaseholder, whose rights, control and powers are restricted in some ways in an estate. Also, the legal status determines the position of an estate in the eyes of the law (Nwanekezie, 1996). That is, whether the right and interest can be enforced at law and this would depend on the functioning system of the society.

2.6.2d. Managerial Character

This reference the style of management adopted for managing a particular housing estate (Scarrett, 1995). The management approach assumed could be decentralised or integrated such as: in a case of multiple blocks of flats in a social housing estate in different locations, but integrated into one management direction; or one with decentralised management for each block of flats or location (Nwanekezie, 1996). But, if the decentralization management approach is used, it is predicated that it will give efficient and effective management direction in the social (public) housing estate management (Beardwell and Claydon (2007).

In all, it is acknowledged that the totality of social housing estate characteristics represents its total qualities, prestige, achievement and personalities either to the individual, or groups, or organisations or governments (Nwanekezie, 1996). However, as earlier mentioned, how successful or bad a social (public) housing estate is managed relies on how much intake of resources it has and on the proper analysis of social, economic, political and environmental challenges by those charged with the management responsibilities (Banfield, 2005). Also, the behaviour patterns of the owner on reacting to the levels of risks and the level of absorptions of these risks would help to shape the social housing estate in a better form.

2.6.3. Management Definition Analysed

This refers to the skill or practice of: controlling; directing; planning; co-ordinating; motivating; forecasting; organising; and communicating; on various activities targeted to achieve a set goal (Banfield, 2005; Scarrett, 1995; Stapleton, 1994); such as social housing estate management activities or a project activity. Management could be viewed in different perspectives, but what matters most is the stand-point of the person managing the estate or interest activities (Nwanekezie, 1996). As such, it would entail the use of imagination and judgment by the person in charge to adjust to change and changing situations. This is because the management option adopted for any particular public housing estate condition or subject property will differ from others since every housing estate is unique to itself; as well as, on

the managerial character of the manager and the resources available to use for the management (Banfield, 2005). The social sector such as social (public) housing estate sector, often involves charities, service organisations and not-for-profit organisations that share social values focused on democracy, accountability and equity rather than individual self-interest. In this case, Farnham and Horton (1996) claimed that 'management' is the way that private businesses achieve their benefits effectively, but in the social sector 'administration' was a more appropriate term to describe the running of publicly-funded bodies.

2.6.3a. Housing Estate Management Principles

The principles or approach adhered to in the management of an existing or future landed property such as a social housing estate will remain synonymous to the general principles of management (Nwanekezie, 1996; Scarrett, 1995). This is indicated and grouped into two processes by Nwanekezie (1996) as ''Thinking'' and ''Doing'' processes as shown in Figure 2.7.

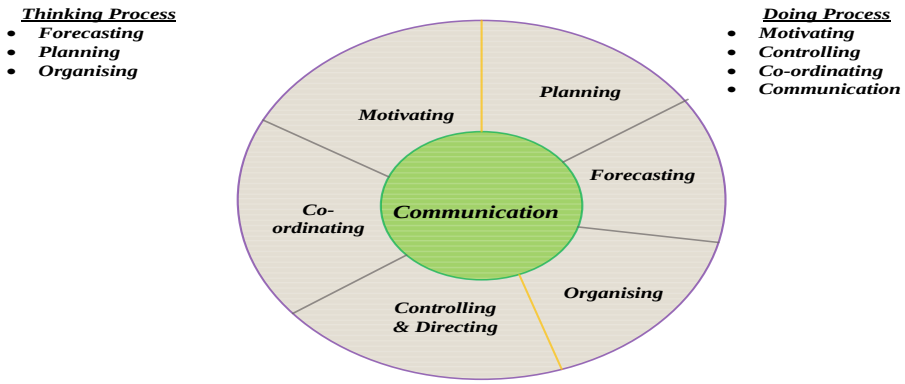

Figure 2.8. Estate Management Principles (Adapted from Nwanekezie, 1996)

Planning, is the philosophy which determines what course of action is to be taken to achieve a specific purpose. It therefore entails making available resources within the context of: labour; materials; machines; finance/money; and management expertise (Nwanekezie, 1996) to sustain a purpose.

Forecasting, is concerned in looking into the future of the social (public) housing estate to be managed and to try to assess the possible trends of events which are likely to pose management challenges; thereafter to proffer steps to adopt as to overturn the difficulties and achieve the objectives as soon as the challenges occur.

Organising, is concerned with those various stages between the planning for a specific task and implementing that plan to take effect in housing estate management. This is best achieved

when all the available resources and materials are within the reach of the management team when required.

Controlling and Directing, emphasises upon the feasible methods to establish and determine that the management task for the housing estate is carried out according to a plan. This process provides the opportunity to compare the actual work done with the original work planned and then make variations which are noted and analysed for future use.

Co-ordinating, is concern on finding an integrating process which ensures that all resources enabling the achievement of every task are involved properly including the housing estate management team.

Motivating, is concerned with encouraging the human resource aspect of the organisation to be more dedicated and proactive in performing their tasks. At the same time, Miner (2003) contended that motivation is a principle that continues to hold a very important position in the eyes of scholars. In addition, Beardwell and Claydon (2007) suggested that how motivation is understood and used in the work place is very significant; and it is characterised by a certain level of willingness on the part of the staff to increase their effort, to the extent that this effort also satisfies a predefined need or desire they hold. In this case, the estate manager or the leader of the management team encourages all other team members, as well as, ensuring an enabling environment for work performance. Therefore, staff motivating factors are identified and implemented on each staff for better performance in a given task. To this, Woodruffe (2006) opines that the non-financial factor to staff motivation has remained more significant in staff performance, such as: advancement; autonomy; civilised treatment; exposure to senior members; and others. In all, Redman and Wilkinson (2006) concluded that staff motivation is extremely important in the management of human, financial and material resources performance.

Communication (at the heart of Figure 2.7), is significant in itself but it is also the bedrock or driver for the other processes. Communication is a means by which management share information with other stakeholders such as face-to-face communication etc. But, Redman and Wilkinson (2006) opine that communication is a weak form of participation. The use of effective communication approaches has increased substantially in recent years (Millward, et. al., 2000), and it is regarded as a precursor to deeper forms of staff participation (Marchington and Wilkinson, 2005). Therefore, for good estate management of the social housing estate, the adherence to an effective communication approach, in addition to the other principles or processes of management is useful. However, it is assumed that in the sustainable

management of housing estates, other issues outside the housing estate characteristics should be analysed and interlocked together using knowledge and experience of how these principles relate to each other; and in this case, monitoring, evaluation and reporting which in Figure 2.7 is not included.

2.6.2b. Housing Estate Management Approaches

Housing estate management in its totality is the control of a housing estate interest having in mind the short and long term objectives of the estate and the reason to keep maintaining the benefits or interest (Banfield, 2005). In this sense, the management approaches, the ability and quality of the decisions taken to manage social housing estates by those trusted with the responsibilities is a critical factor to the overall success of the housing estate together with the benefits expected (Scarrett, 1995). In the management of housing estates, there are basically four methods in use such as: in-house management; management by appointed agent; partnership management; and hierarchical division management (Scarrett, 1995).

The in-house management refers to where an institution employs some person or uses internal staff solely to focus on developing a fast track approach to manage the housing estate business case (Scarrett, 1995). This is often done to minimise the knowledge of the outsider to the activities of the organisation and to utilise the practical skills and expertise of the staff. But, the biggest challenge to this approach is that the staff may not have all the skills and expertise on all aspects of the housing estate; and engaging one with such skills and expertise is unlikely to crop up, as it may not be economically viable to the institution (Scarrett, 1995).

For the management by an appointed agent, it refers to where an agent is appointed to advise and manage the services needed to sustain the housing estate and the benefit there from. The advantage of this is that the agent or firm engages in a wide range of housing estate activity related services, such that they have and maintain highly skilled and expert personnel within the management team. Also, because of the wide range of experienced staff, current housing estate management practices are intact and known by the staff; but a major detractor to this approach is that: the cost of the services may be more than when provided by the in-house staff (Scarrett, 1995); the political bottle neck in the top management decision makers (Levainen, 2003); and lack of providing capacity building to the in-house maintenance management staff (Siltala, 2003). However, Wagenber (2003) opined that total service cost would be reduced and transparent; and flexibility and profitability with this management approach is enhanced.

Regarding partnership or combination of in-house and appointed agent management approaches, it refers to a situation where an agreement or arrangement is made between the in-house estate department and the appointed agent/firm on the range of housing estate management tasks in an almost flawless way to the common interest of the portfolio (Scarrett, 1995). The success of this approach as suggested by Scarrett (1995) requires a particular kind of guideline setting out the responsibilities which ensure the working of both parties together at various levels and intensities. It also requires that no party have total line management of all the housing estate management activities; and as such, a strong commitment is needed based on a proper arrangement that shows the working relationship (Tuomela and Puhto, 2001).

Hierarchical management division refers to a management approach in which the in-house estate management team directs the strategic thrust and limits the appointed firm to carry out specific management tasks in the housing estate maintenance management (Atkin and Brooks, 2000; Scarrett, 1995). In this sense, it needs to provide a contract document which sets out the precise responsibilities of the firms, thereby reducing inconsistency and misunderstanding. One major premise of this is that the in-house estate management department may not have the right staff with the skills and expertise to carry out those tasks.

Having conceptualised 'estate' and 'management'; Estate Management according to Banfield (2005) and Stapleton (1994) is the science of directing, administering, planning, supervising, and coordinating the responsibilities of those who own, lease, finance, occupy or use real estate in order to achieve a predetermined objective, usually the maximisation of the use and benefit to be derived there from. Stapleton (1994) added that it is the means and activity by which land is maintained and controlled, including the study of all matters that affect land as a factor of production, in order to ensure that the best use and benefits is derived there from.

The Royal Institution of Chartered Surveyors (RICS, 1974) in their policy review, cited in Banfield (2005, p. 19), defined it as:

> ``*all facets of the use, development and management of urban land, including: the sale; purchase; and letting of residential, commercial, industrial estates; management of urban estate; and advice to clients on planning''.*

However, this particular definition though noted to be broad never had a general acceptability in the profession (Nwanekezie, 1996). This is predicated to be, because, it did not include an aspect of estate management practice of rural estate management which happens to be the

major significant aspect of the profession particularly in third world countries (Nwanekezie, 1996). According to Thorncroft (1965), cited in Banfield (2005, p. 19), estate management is defined:

> ``*as the direction and supervision of an interest in landed property with the aim of securing the optimum return; this return need not always be financial, but may be in terms of social benefits, status, prestige, political power or some other goals or group of goals*''.

Following these definitions, therefore, the estate management profession encompasses, but is not limited to, the following: institutions involved in economic principles and urban/rural land utilization; patterns of city growth and development; public control over land utilization; property/land administration and valuation; the functioning of the real estate market; the nature of construction activity; real estate finance; advice on management and development of real estate; advice on mortgage loan and appraisals; and advice on real estate market analysis and brokerage. It also shows that it is not limited to guiding against financial benefits, but of other importance are the social and political benefits, such as in social (public) housing estate management. However, Arnison (1988) opined that Thorncroft's (1965) view of estate management is in actual fact material and financial; and it is only anxious with determining worth and benefit in practical ways, and to make decisions concerning change based on reasonable, economic principles. Despite this criticism, Thorncroft's (1965) definition has remained the generally accepted definition in today's estate management literature as it included all aspects of the estate management profession (Banfield, 2005, Stapleton, 1994).

In an attempt to sustainably manage social (public) housing estates, apart from the characteristics of the housing estate and other prevailing built environment factors; the nature of the ownership held will enhance or detract the level of resource commitment and the risk that can be accommodated. In this sense, ownership and the various systems of ownership in Nigeria, but with much more emphasis on the Niger Delta is considered in the next section of this study.

2.6.4. Ownership Systems in Nigeria

Ownership refers to a position where a person or institution or organisation has a legal claim over any landed property such as: residential housing estate; industrial estate; private housing estate; public (social) housing estate. As such, ownership does not arise from possession of a landed property that may be illegal in nature. But, it exists, such as in: where a person or group of persons or organisation or authority or government is capable of exercising power of

ownership; where there is an object or something to exercise ownership as in the case of social housing estates; there is a person or institution proving an intention to own the object with an intention to control, use and enjoy the property. In this sense, regarding the social (public) housing estate, the government ought to prove the burden of responsibilities attached to the ownership of such housing estate. This can be done through a competitive right that is enforceable based on ensuring its economic value and legal status, and such that either a legal or a customary law covers the ownership. The purpose of government ownership of social housing estates is tied to the need forcing citizens to have access to housing or through which a citizen owns a property and this remains the social services reason for providing and owning social (public) housing estates in Nigeria (FMLHUD, 2012). There are other reasons for ownership of landed property such as: for financial; residential; charitable; provision of economic services; socio-political; independence; continuity; and religious purposes. Whatever may be the substantive reason for the ownership, it would be a non-derivative ownership, capable of being acquired through the Land Use Act, 1978 (CAP L5. LFN, 2004).

2.6.4a. Substantive Rights in Ownership

The two principal rights in ownership of land; or land and buildings, with which the estate manager is concerned, and is relevant to the study, is known respectively as the 'freehold' and 'leasehold' right. They must be distinguished from mere permission to enter upon a housing estate (even permission by virtue of a contract e.g. for payment) which is known in law as a 'license'. Since permission can normally be withdrawn unilaterally on reasonable notice by the housing estate owner to the licensee, it therefore has a negligible value in itself.

To the estate manager, the term freehold implies a property or housing estate, which the owner holds absolutely and in perpetuity such as the Federal and State Governments. They are either in physical possession or receipt of rents arising from leases, or tenancies created out of the freehold rights. However, in law, the term freehold has a wider general meaning and extent to entailed rights and rights for life. The Law of Property Act (SEC. 1, LFN, 1925) states that the freehold and the leasehold rights are the only forms of ownership rights capable of being a 'legal estate' in land or landed property; other interests are 'equitable' merely. It further states that a 'legal estate' is 'good against the whole world' but an equitable right is enforceable against some persons and not whole world. In this sense, a 'fee-simple absolute in possession' exists in all land and landed properties in Nigeria such as social (public) housing estates owned by the Federal and State Government (Land Use Act of 1978 now CAP L5. LFN, 2004). For the freehold estate right, it exists in two forms such as: the fee-simple absolute; and the life estate right. The owner of a fee-simple absolute estate possesses all the

rights an individual or organisation can have in land and landed property. It is restricted only by the rights of other individuals and the powers of government. This ownership right allows such benefits as: transferability; inheritance; no duration limit; unrestricted control; use; and enjoyment of the housing estate.

In the life estate right, the life tenant or owner in possession is entitled to possession and use of land and the landed property and the income there from. The holder of a life housing estate right may mortgage, lease, sell or give away the estate, but the duration of such terminates at the death of the person. The life tenant or owner possession and use of land are restricted by the duty not to commit waste. Waste occurs when the occupier acts in ways that will injure the estate since the housing estate will eventually revert back to the original owner. Examples of some of these situations include: failure to pay taxes or mortgage payments; and changes to the original use of the property, such as converting it from commercial to industrial use.

Regarding the leasehold estate right, it is related to a lease which is both a contract and conveyance of an interest or right in land and landed properties. In this sense, a leasehold estate interest, or 'term of years', is in general subject to the payment of an annual rent and to the observance of covenants contained in the agreement. Under this right, the person who grants the lease is called the 'leasor' and the person who the lease is granted to is called the 'leasee' or 'leaseholder' (Nwanekezie, 1996). If the lease has covenanted the lessee to pay less than the true rental value of the premises, then the lessee will be in receipt of a net income from the property, the capitalized value of which, for the unexpired term represents the market value of his leasehold interest right. Leasehold estates are classified and identified according to their duration and the four common leasehold estates rights/interests are: estate for a term of years; estate from year to year; estate at will; and estate at sufferance. The housing estate right for a term of years has a fixed beginning and a fixed end date for the termination. A housing estate right from year to year is referred to as a periodic tenancy estate right and requires a proper notice for its termination by either party to the agreement. For housing estate right at will, it has an indefinite duration, but can be terminated at the "will" of either the housing estate owner or the occupier/tenant. The relationship and contradiction between this and the other forms is that the housing estate right may arise by implication or by express agreement; and it will usually terminate automatically on the death of either the landlord or tenant. The housing estate right at sufferance occurs when a tenant comes into possession of a property lawfully, and after the expiration of the right, continues to occupy the property without the consent of the housing estate owner. In the course of managing housing estates or substantive rights therein, building and occupational charters emerged:

- **Building Lease:** These are leases of land ripe for building under which the lessee undertakes to pay a yearly ground rent for the land as such, to erect suitable buildings upon the land, and to keep those buildings in repair and pay all outgoings in connection with them throughout the term. The ground rent represents the rental value of the bare site at the time the lease is granted, and the difference between this and the net rent obtainable from the building when erected will constitute the lease's profit rent or net income. Building leases had usually been granted for terms of 99 years which has now become 54 years. However, longer terms are found occasionally.
- **Occupation Leases:** This is a lease of land and building for occupation by the lessee. In practice, the length of the lease is according to the type of property. Dwelling houses and older types of commercial and industrial premises are often leased for fairly short terms, such as 3 or 5 years. In the case of medium and long-term leases of commercial or industrial premises, it has become a standard practice to incorporate a "rent revision" or "rent review" clause, which enables the rent to be revised, usually upwards, at fixed periods of time. The trend in recent years is due largely to the effects of inflation, and has made review periods shorter, say 5 years to be a fairly standard period. Ground rents are now normally subject to review, the review periods often being the same as for occupation leases, although sometimes they are less frequent; 10 years being fairly common.

2.6.4b. Ownership and Land Tenure System in Nigeria

The ownership system which in this context is the same as the land tenure system is a system of ownership which defines the rights of people or organisations to own, use and control land and its resources. This ownership system in Nigeria is currently guided by the Land Use Act of 1978 which was basically promulgated to ensure that there is productive utilization of land as an imperative factor of production (CAP L5. LFN, 2004). The premise of the act is aimed at assuring, protecting and preserving various ownership rights by vesting all land in the state to the Governor of that state. With the Land Use Act, otherwise known as CAP L5, Law of Federation of Nigeria (2004), land in every state in the country became held in trust by the State Government on behalf of and for the benefit of the people of the state. However, it is not out of place to set a review of the land tenure system operating in the country prior to the promulgation of the Act, which is basically divided into the northern and southern parts. But for this study and its context, only the southern region ownership system is discussed below.

2.6.4c. The Niger Delta Ownership System

In this region of Nigeria, a dual ownership system exists, such as customary and non-customary ownership. This is because the colonial government never attempted to lay claim to absolute ownership due to the stiff opposition by the southern people, a position which remains to a large extent in certain quarters despite the Land Use Act.

The customary land tenure system considers land ownership in terms of communities, clans, hamlets, families, groups of individuals and at times individuals. Land in this respect was regarded as property belonging to either the community or the family and was being held in trust by the chief or the community and family leader.

The non-customary land tenure system is the English System of land ownership. It facilitates commerce and enhances the property market. For example, under this system was the concept of fee simple interest or freehold which confers absolute ownership to the owner. With the increase in population, more land in the Niger Delta has been converted from the customary holding to the English type while at the same time laws on the customary tenure continue to meet land requirements through compulsory acquisition.

2.6.4d. Effects of the Ownership System on Development in the Niger Delta

The most serious problem of the South's land tenure system was the defective machinery to facilitate the disposition of group land for development purposes. The South's land tenure system revealed that it did not encourage development as land acquisition was difficult.

One distinctive feature of this system of land ownership was that it provided group security and survival, as sale of family land was a taboo. This was because the Southerners believe strongly that land belonged to a vast majority of people. Some of whom were dead, a few living and others yet unborn. These beliefs deterred commercial banks and other financial institutions that feels very reluctant to accept bare land as collateral for mortgage purposes. Although, before the Land Use Act of 1978, some attempts to solve land transfer problems were made. Of tremendous help were changes brought about by the Property and Conveyance Law of Western Nigeria and Mid-West (CAP 100, 1959, in Olong, 2011). This made land easily available by empowering the trustees for sale to sell the land and the purchaser to hand-over the money to the trustee without concerning himself with the beneficiaries. Also, the Registered Land Act of Lagos (CAP R4,of Lagos State of 2004, in Olong, 2011) was introduced with the objective of providing among others, systems of compulsory registration

under which all titles and other interests in land must be recorded in the land register, this also facilitated land disposition and checked frauds.

However, as time went on, the sensitivity of land matters in the Southern part of Nigeria assumed a new dimension not only because of people's land consciousness and sophistication, but also as a result of the growing urbanization and urban land crises. In order to avert these land constraints and to launch the country (both North and South) into full scale economic and industrial development, both the Federal and State Governments felt obliged to rationalize land ownership and allocation, particularly, urban land use. In 1977, the Land Use Panel Report headed by Mr. Justice Chike Idigbo became the basis of the Land Use Act of 1978 by which "all land comprised in the territory of each state in the Federation is hereby vested in the governor of that state, and such land shall be held in trust and administered for the use and common benefit of all Nigerians, in accordance with the provisions of the Act".

2.6.5. The Land Use Act, 1978 (CAP. L5. LFN, 2004)

The Act, which represents the last and most significant development in Nigerian land and the ownership rights in law, has some far-reaching effects on the practice and development of real estate management such as housing estates, by its redefinition of property rights in Nigeria particularly in southern Nigerian (Aluko, 2012). The cardinal principle of the Act is the principle of state ownership of land asserted in Section 1 therein. The Section provides that:

> *"Subject to the provisions of this Act, all land comprised in the territory of each state in the federation is hereby vested in the governor of that state, and such land shall be held in trust and administered for the use and common benefit of all Nigerians in accordance with the provisions of this Act" (*CAP. L5. LFN, 2004, p.1).

The effect of the above provision is that since the commencement of the Act on the 29th of March, 1978, the ownership of all land in each state is transferred to the governor of that state (Aluko, 2012). However, the Act does not completely abrogate private interest in land. Whilst the whole thrust and purpose of the Act is to assert the government's powers and rights over land, it nevertheless, forfeits to the citizens some proprietary interests in land in the form of right of occupancy. A right of occupancy is either statutory or customary and may be for a definite term (CAP. L5, LFN, 2004).

A statutory right of occupancy is a right expressed or deemed granted in an urban area by the governor. Therefore, a statutory right of occupancy may arise through an 'express' or 'deemed' grant by the governor.

Express Grant, as referred in section 5 of the Act, (CAP.L5.LFN, 2004) empowers the governor to grant statutory right of occupancy, in respect of any land, whether or not in an urban area, to any person for any purpose. The statutory right of occupancy expressly granted, by virtue of section 8, must be for a definite term.

Deemed Grant according to the Act (CAP.L5. LFN, 2004) can be made on:

- **Developed Land;** an owner of land in an urban area that was developed prior to the Act is deemed by section 34 (ii) to be holder of statutory right of occupancy issued by the governor. The concept of "developed land" under the Act is simple. It means the existence of any physical improvement in the nature of road development, services, water, electricity, drainage, building structure, or such improvement that may enhance the value of the land for industrial, agricultural, or residential purposes. A "deemed grant" confers on its holder an infinite term because the Act does not fix any duration for possession.
- **Undeveloped Land;** on the other hand, where the land is undeveloped, the owner is entitled to hold one plot of portion not exceeding half a hectare as if a right of occupancy had been granted by respect that such previous land rights were extinguished. State rights and those of the former owner in respect of such land were extinguished.

A customary right of occupancy is a right granted or deemed to have been granted over land in a non-urban area by a local government (CAP.L5. LFN, 2004). The deemed grant in this scenario can be made on:

- **Developed Land;** as an owner of developed land in an urban area continues in possession by the operation of the Act, so also an owner of developed land in non-urban area retains his possession for an indefinite term. For this understanding, the owners' holds the customary right of occupancy from the appropriate local government.

From the foregoing, the greatest interest and ownership right in land that is capable of being a subject of private ownership of individual citizens is thus a right of occupancy. But, Aluko (2012) opined that one of the major challenges to deficits in housing estate access, availability and post-construction management is the bureaucratic bottle neck in the process of obtaining the certificate for right of occupancy. It is also clear today in the Niger Delta that where the housing estate is owned without a certificate of occupancy, it is merely a lease. In this case, there is a need to look for a strongly supported policy formulation and planning which

considers the character, structure, location and others for the social (public) housing estates to be sustainable. In 2007 to 2009, substantive efforts to amend the Land Use Act by the Land Use Act Review Committee were made, but at the end of the process, it was abortive. The report only concerned itself to amend the Act by restricting the requirement of the governor's consent to assignments and avoiding the total review of the entire Act as agitated for by many Nigerians (FMLHUD, 2012). However, for this effort to be fruitful it will be necessary to first of all rescind the Land Use Act (1978) from the Nigerian constitution and thereafter discussion on the amendment begins.

2.7. SUMMARY OF CHAPTER

The literature review chapter exposes that mass housing provisions were seen as the only means to overturn the housing problems of poor conditions and deficits in the developing countries, for example, Nigeria and especially in the Niger Delta region. The chapter determines and presents that sustainability in the housing estates provision is very significant and necessary. There was no structure or strategy developed or adopted for the sustainable management of the social (public) housing estates stocks after the production and delivery which incorporated the principles and/or beneficial drivers/factors of sustainability. Additionally, the chapter discloses that the: understanding; awareness; the effective utilisation of the sustainability concepts and the seven assumed essential and beneficial factors/drivers was indispensable yet lacking or limited. At the same time, this underlined that the other relevant concepts considered in the study; were equally fundamental to the sustainability of development project benefits after construction in the built environment. The chapter further indicated that there were different approaches of estate management and housing maintenance management to be utilised in the management of social (public) housing estates units'. But, utilising the appropriate and most effective approach should not be underrated where sustainability in the social (public) housing estates units' and the benefits was to be preserved and sustained. The successful achievement of the sustainable social (public) housing estates unit' post-construction management is also revealed and predicted not feasible and viable without the effective involvement/inclusion of the relevant stakeholders (internal or external) to the social (public) housing estates. These beneficial sustainability factors; the estate management principle and method; the maintenance management type; and the relevant stakeholders'; should effectively be utilised and interlocked. The chapter underscored that these themes need to proactively operate as a whole through integration into the post-construction management practice for the rectification of the poor social (public) housing

estates units' conditions, deficits and the benefits improvement and sustainability achievement. These revelations provoked the initial conceptual framework (*see* Figure 2.9a) and represent the main themes and issues that the research investigates through exploration and explanation research procedures. How these themes might likely be swaying or improving the social (public) housing estates and their benefits in the Niger Delta region of Nigeria is presented. Furthermore, Figure 2.9b indicates the initial flow chart of the conceptual framework (Figure 2.9a) in order to successfully investigate these main themes drivers/factors. However, more details and explanations to the flow diagram are provided in chapter eight (*see page 284 and 297*) of this work. Assessing and selecting the best alternative to utilise by integration implementation in the social (public) housing estates units' post-construction management approach and for the benefits sustainability was justified and assessed as being critical to this research.

Following the literature review analysis, the study is provoked to pursue and investigate the main earlier stated research questions in chapter one (*see* section 1.4) in order to address the study objectives and attain the research goal/purpose. These are to ensure that both existing and future social (public) housing estates stock is managed in a sustainable manner so as to provide the benefits sustainability in the Niger Delta region of Nigeria. Especially important is to develop an integration framework that should be adopted and applied in the post-construction management of the social (public) housing estates units' and the benefits sustenance in the built environment.

Subsequently, since the literature findings above were recognised and subsumed by the study to be largely social issues, the next chapter presents the methodology of the study which encompassed: the philosophical stance; the strategy/approach; methods of data collection; and the data analytical instruments adopted.

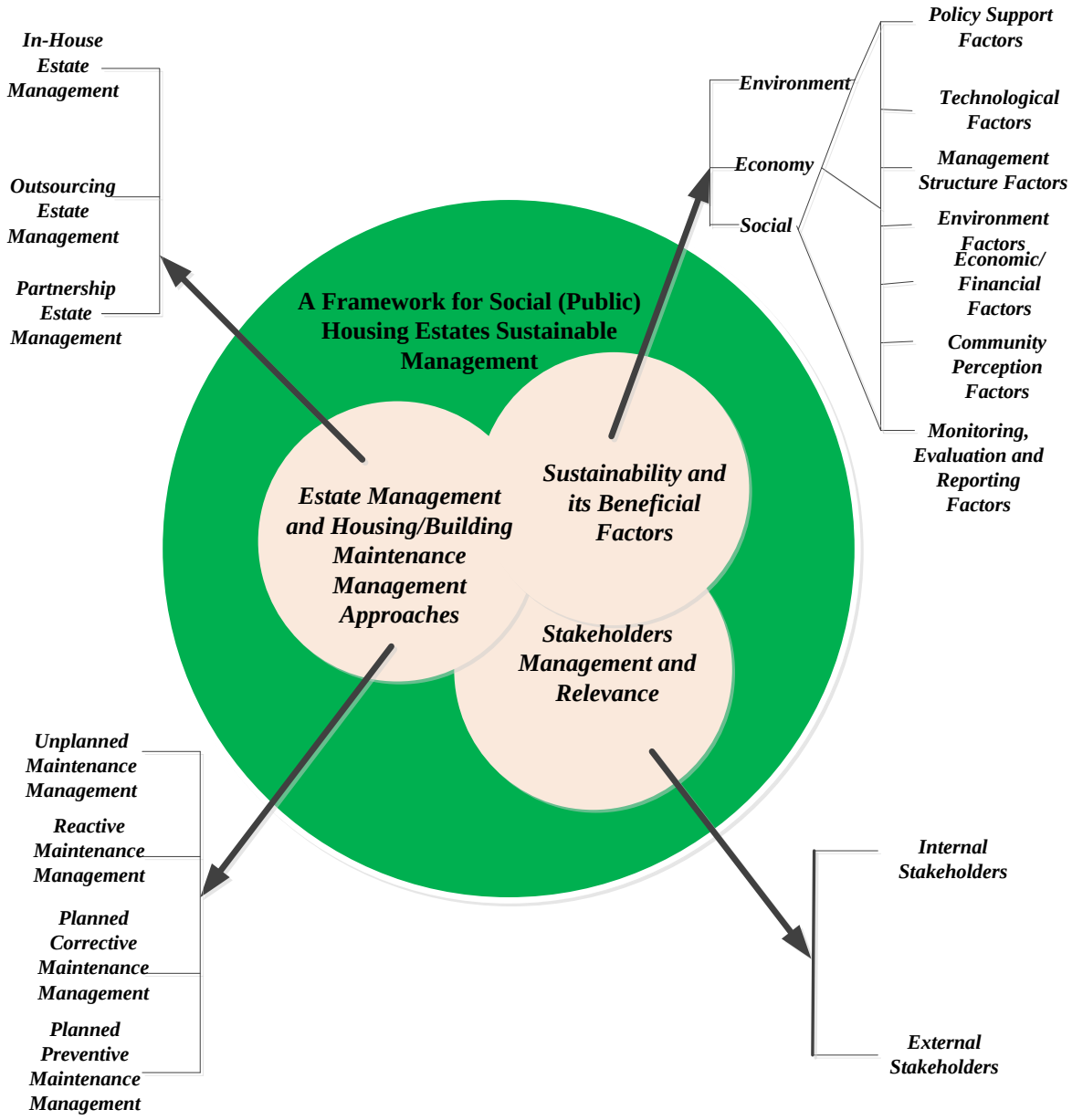

Figure 2.9a A Initial Conceptual Framework for the Sustainable Management of Social (Public) Housing Estates

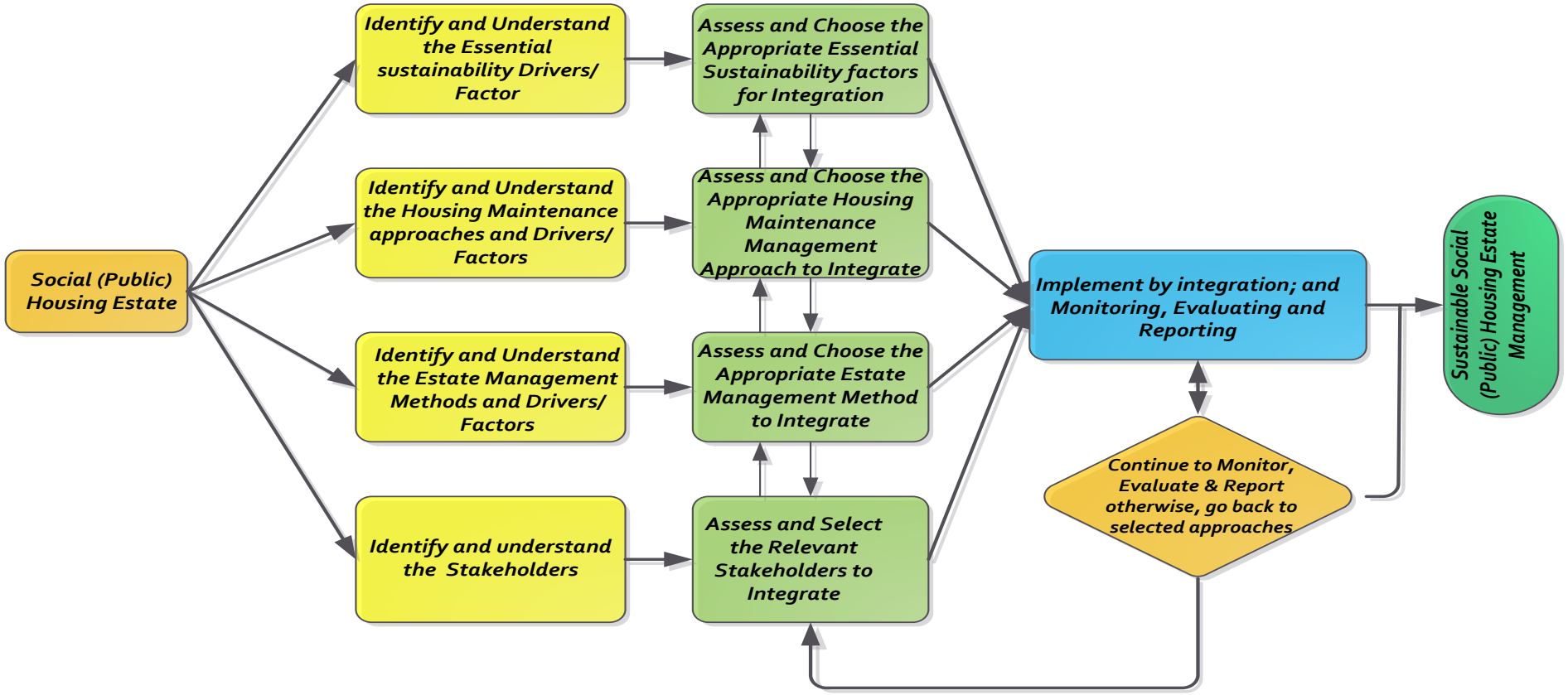

Figure 2.9b Flow Diagram of the Conceptual Framework for Sustainable Management of Social (Public) Housing Estate

CHAPTER 3: RESEARCH METHODOLOGY

3.1. INTRODUCTION

In this chapter, the research philosophy, approaches, design and methods used for this research study are discussed, as well as identifying and examining the relevant theoretical background as to better understand the various aspects of research methodology. This chapter further introduces the rationale behind the choice of the research philosophy, approach, design, method, and analytical process upon which this study is founded. It also presents that the fieldwork was an exploratory and explanatory multiple embedded case study, which consisted of sixteen (16 Nr) semi-structured interviews and this provided the underpinning for hundred (100 Nr) questionnaires in this study. The detailed justification for this approach is presented below.

3.2. THE RESEARCH PHILOSOPHY AND APPROACHES

Research methodology is a philosophical stance of worldview that underlies and informs the style of research (Sapsford and Jupp, 2006*).* In another view, Collis and Hussey (2003) and Creswell (2009) considered research methodology as the overall approach to the design process of conducting research including all phases from the theoretical underpinning to the collection and analysis of data. In this sense, research methodology is all about decision taking through an informed decision on a research problem, as well as, helping to direct to an appropriate method, which sometimes can be messy. Therefore, it could be deduced from the above that the philosophical worldview of things is vital to the meaning of research methodology. Hence, research philosophy is concerned with the way in which things are viewed in the world (Saunders *et. al.,* 2009; Yin, 2009). It addresses the assumptions that support the research strategy and the methods chosen as part of a research paradigm. In addition, our practical experiences, relationship to knowledge and the process by which they are known and developed in real-life situations (Saunders *et. al.*, 2009) also matters.

Therefore, it helps in clarifying research design, to know which research design will work and which will not, and to identify and even create a design that may be outside the researcher's knowledge supported by past experience (Easterby-Smith *et. al.,* 2003). Understanding research philosophy and agreeing to adapt to a particular perspective for a proper research paradigm is identified as being the first step in setting other research parameters and choices to a study (Kagioglou *et.al.,* 1998). As a result, in discussing the different research philosophies, it is important to have the knowledge that they are led by a set of assumptions

which could be ontological or epistemological. They have different assumptions which will influence the way in which the research process is diagnosed and will provide a route to understanding the way to approach research in a field of endeavour (Saunders *et. al.*, 2009). However, many researchers have a preference to understand these complex philosophical perspectives within the context of the two main traditions of research inquiry, generally acknowledged as quantitative and qualitative lines of inquiries (Creswell, 2009; Saunders *et. al.*, 2009; Bryman, 1992). From the above, it is clear that these research methods cannot be understood in isolation from the research philosophical (ontological, epistemological, axiological and pragmatic) stance of the researcher. Therefore, the four major aspects of thinking about research philosophy as suggested by Creswell (2009), Yin (2009), and Saunders, *et. al.* (2009) needed to be considered, namely:

3.2.1. Ontology

This questions the assumptions that need to be made about the way in which the world works and concerns itself with the nature of reality (Saunders, *et. al.*, 2009). The ontological assumption in qualitative research views the problem of reality as that constructed by the researcher involved in the research circumstances ‘‘i.e. constructivism’’ (Creswell, 2009). This implies that, the researcher, those individuals being researched and the reader interprets information ‘‘i.e. interpretative’’ (Creswell, 2009) differently. However, in quantitative research, it views realities as ‘objective’ (i.e. objectivism) and it is a study independent of the researcher (Saunders, *et. al.*, 2009). This can be measured by using questionnaires or another instrument and indicates ‘‘positivism’’ (Saunders, *et. al.*, 2009; Creswell, 2009).

3.2.2. Epistemology

This questions the assumptions of what is acceptable as knowledge and that which constitutes an acceptable knowledge in a field of study (Saunders *et. al.*, 2009). It argues that in a qualitative approach, the researcher networks with those they learn from, interviewing or observing participants over a long period of time for a genuine partnership for the study i.e. ‘‘interpretive’’ (Creswell, 2009; Saunders, *et. al.*, 2009). However, in a quantitative approach, it questions the relationship of the researcher to that being researched (Creswell, 2003). It makes it clear that the researcher should remain distant and independent from that which has been researched, therefore, attempting to control for bias, selecting a systemic sample, and hence, being objective in assessing a situation i.e. ‘‘positivism’’ (Creswell, 2009).

However, in debates about the research process, Saunders, *et. al.* (2009, p.109) argued that it may be appropriate to start by asking the question ‘*do you need to adopt one philosophical*

position' in a study even though ontology and epistemology have a ready for action loop in research. Also, whether it is important to consider the role values play in a researcher within the chosen research paradigm (Saunders, *et. al.*, 2009). The rationale behind this as suggested by Saunders, *et. al.* (2009), Tashakkori and Teddlie (2003) and Creswell and Plano Clark (2011) is that sitting comfortably in one position or the other is not idealistic as some research questions would require the combination of methods in answering them. Also, epistemology provides the understanding whether the work is influenced by the researcher or not. Therefore, it is in this circumstance that the following section of the study considers axiology, pragmatism and realism as necessary for this research.

3.2.3. Axiology

This philosophical issue questions what role values play in research choices and with value judgements (Saunders, *et. al.*, 2009)**.** It provides that in a qualitative research, the researcher accepts as valid the value-laden nature of the study and enthusiastically reports his or her values and prejudice for, as well as the value of knowledge provided from, the field by the informants (Saunders, *et. al.*, 2009; Creswell, 2003). Hence, the choice of what to do, and how to do it, are determined by human beliefs and experiences (Easterby-Smith, *et. al.*, 2003). Conversely, in a quantitative paradigm it provides that the researcher's values should be kept out of the study. This implies that the researcher's choice of what to do, and how to do it is determined by objective criteria (Easterby-Smith, *et. al.*, 2003). Finally, it is the philosophical perspective, approach, method and data collection techniques choice that is determined by one's values (Saunders, *et. al.*, 2009).

3.2.4. Pragmatism

This philosophy regards choosing between one position (epistemology, ontology or axiology) and the other as somewhat unrealistic in practice; and it is argued that the most important determinant of which position to adopt are the research questions (Creswell and Plano Clark, 2011; Saunders, *et. al.*, 2009). This is particularly relevant where the research question does not suggest clearly that either a positivist or interpretive philosophy should be adopted in an inquiry, for example, within an epistemological perspective. Therefore, in this philosophical quarrel the use of both qualitative and quantitative methods to resolve a real-life world challenge are commended.

However, within the overriding research methodology and philosophy, quantitative and qualitative are the two main traditional methods, but, today the mixed method approach exists, which represent: deductive; inductive; and a mixture of both; respectively (Creswell,

2009). Moreover, the choice of a particular method is influenced by certain factors such as: the topic to be researched; the objectives; and the specific proposed research questions. Creswell (2009) added that other factors such as: sustaining personal interest; is it publishable in a scholarly journal; and does it develop a new idea in the scholarship literature; are equally important.

A qualitative research approach is an investigation process of a sympathetic study into a social or a human problem, focused on edifying a diverse, holistic depiction, fashioned with words, reporting comprehensive views of informants, and conducted in a normal setting (Creswell, 2009). Therefore, it is described as constructivist or naturalistic or interpretative and utilises inductive techniques of research study which try to explore a subject when the variables and the theory base are not known (Creswell, 2009).

A quantitative research approach is an investigation into a social or human problem, based on testing a theory composed of variables, measured with numbers, and analysed with numerical procedures. This is to determine whether the prognostic generalizations of the hypothesis hold true (Creswell, 2009). As a result, it is objective leading to positivist and deductive reasoning in a research study (Saunders, *et. al.,* 2009, Yin, 2009).

For the mixed methods approach several definitions exist: it is a research inquiry that employs both qualitative and quantitative approaches in a mixed methods research work for the purposes of breadth and depth of understanding and partnership (Johnson, *et. al.,* 2007). Creswell and Plano Clark, (2011) added that the indispensable premise of mixed method design is that the use of qualitative and quantitative, in rapport, will provide a better understanding of the research problems than the use of either one method alone in a study. This is argued to be one, if not, the most central premise of the pragmatic philosophical reasoning in research today (Tashakkori and Teddlie, 2003).

From the discussion above, a choice of a particular research philosophy and paradigm to adopt for this work emerges as shown in Figure 3.1, 3.2 and Table 3.1. It therefore becomes the basis of discussion in the following sections of this research study.

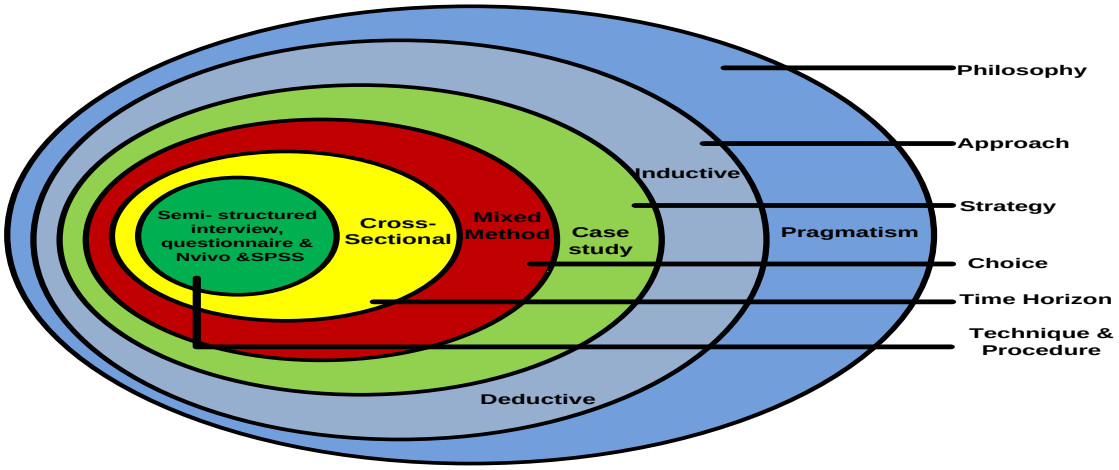

Figure 3.1. This Research "Onion" Process (Adapted from Saunders et. al., 2009)

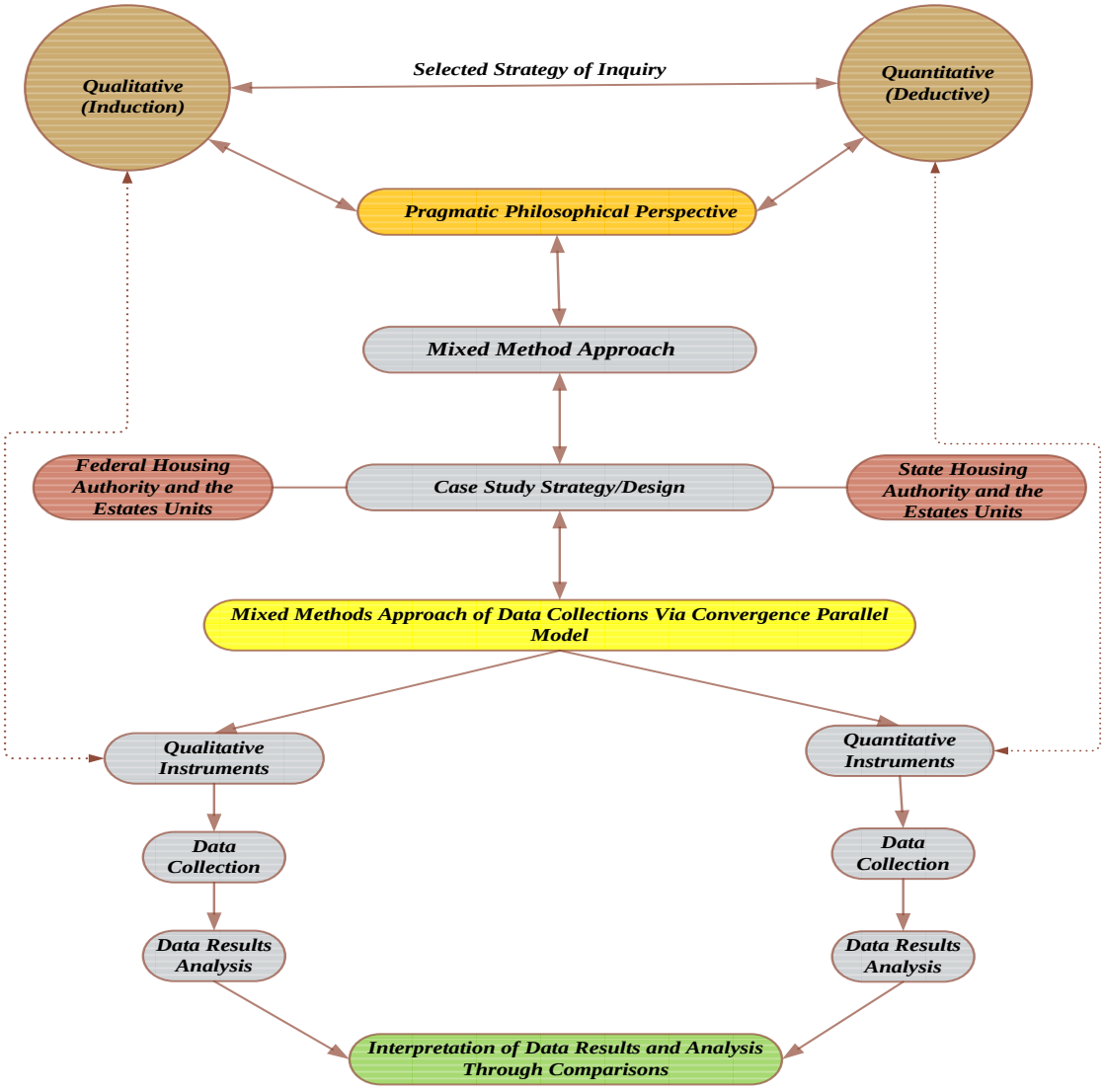

Figure 3.2. The Overall Research Methodological Framework (Adapted from Yin, 2009)

Table 3.1: Summary of the Research Philosophy Perspectives and Stance

Research Philosophy	***Perspectives***	***This Research Stance***
Ontology	Objectivism (External Relationships); Constructivism (Internal Relationships).	Constructivism and Interpretivism which emphasises on the investigation of a real-life situation within the context of the phenomenon.
Epistemology	Positivism-observer is independent of that being researched; Interpretative (observer is dependent of that being researched, which implied a social phenomenon).	Interpretative because the researcher intended to investigate situations that involve people, their knowledge and understanding of the phenomenon in a real word problem.
Axiology	Value neutral (value free); Value Biased (value laden).	Value laden as the researchers' views will depend on the participant beliefs and experiences of the situations.
Pragmatism	Neither positivism or interpretative but combination of both to address a social issues.	Interpretative more than positivist because a practical solution is needed to the real-life problem.

3.3. JUSTIFICATION FOR A PRAGMATIC RESEARCH PHILOSOPHICAL PERSPECTIVE AND STRATEGY

As earlier discussed, the purpose of providing such fundamental underpinnings on the various research philosophies and approaches is to elicit the potential assumptions of each, which guide the choice of a particular paradigm for this research. As a result, the philosophical perspective adopted by this research as shown in Figure 3.1 and Table 3.1 is pragmatic which draws heavily on inductive reasoning which can be supported by positivist reasoning. This is because in order to fully analyse a phenomenon, it is vital and necessary to support the inductive approach with deductive thinking to enable it to tackle a real-world problem such as in the case of this research. But, in research philosophy there are other alternatives such as: interpretative; realism; and positivism; etc. (Saunders, *et. al.,* 2009). These alternative assumptions and their importance for use in a research inquiry are summarised in Table 3.2. The most appropriate assumptions are emphasised in bold within the Table.

Table 3.2. Summarised Comparisons of Research Viewpoints in Social Science Research

	Interpretative	**Positivism**	**Realism**	**Pragmatism**
Ontology	**Things are socially constructed leading to subjective reasoning which may change with multiple realities**	Emphasises that the researcher is external, objective and independent of that study	Researcher is objective and exists independently of human mind but interpreted out of social situation	**Researcher is external, multiple, and the view is that chosen to best answer the research questions**
Epistemology	**Towards subjective meanings of social phenomena, looks at details and the realities behind it with motivating action**.	Things are observed to prove credibility to facts, focusing on causality and law generalisations thereby reducing phenomena to simplest elements	**Belief that observing an event proves credibility of facts; scarce data or facts creates imprecision and misinterpretations; focus only within context or contexts for explanations**	**Either subjective or objective meanings can provide facts to a research question; focus on practical application to issues by merging views to help interpret data**
Axiology	The research is value bound; such that the researcher is part of what is being studied, not isolated from the studied and will be subjective	The research is value free, hence independent of the data and objective in the analysis of the data	The research is value laden; hence, the researcher is biased by world views, culture, values, experiences and will affect the results/research	**Values play a vital role to interpret results using subjective and objective reasoning**
Approach	Qualitative	Quantitative but can still use qualitative	Approach adopted depends on the research matter	**Uses both qualitative and quantitative**
Method	**Mixed or multiple methods**	Mono method but can use mixed in certain cases	Method to use is based on the research problem or situation	**Mixed or multiple methods**

However, from the view of the various perspectives particularly the interpretative approach; associated with inductive reasoning, of which this research is influenced; the choice of adopting predominantly more inductive reasoning than objective reasoning in a pragmatic

approach becomes obvious. Also, this follows the summarised characteristics of interpretative reasoning (Creswell, 2009; Saunders, *et. al.,* 2009; Oates, 2005) below:

- **Multiple subject realities**: This implies that there is no single way to seeing truth in any phenomenon. As a result, what the researcher sees' to be true or real or knowledge in a situation is that constructed and interpreted out of their minds even though it is on an individual or group basis. Therefore, different individuals, groups, organisations or cultures perceive the phenomenon differently;
- **Multiple interpretations**: Researchers expect that they will not arrive at one fixed explanation of what occurs in their study. Instead they will offer more than one explanation and discuss which, if any, seems to be more plausible because there is more evidence to support it;
- **Researcher reflexivity**: Researchers are not automatons; rather their own assumptions, beliefs, values and actions will inevitably shape the research process and affect the situation;
- **Dynamic, socially constructed meanings**: This emphasises that whatever the reality is for an individual or a group, it can only be accessed and transmitted to others through yet more social constructions such as language and shared meanings and understanding. But these differ across groups and over time;
- **Qualitative data analysis:** There is often a strong preference for generating and analysing qualitative data. However, there is also an indication that researchers can use quantitative data collection such as a survey in an interpretive manner;
- **Study of people in their unbiased social setting:** Researchers aim to understand the person in their own world and not in the artificial world of a laboratory experiment such as is mostly seen in a positivism approach.

The rationale behind the choice of approach is that the research questions require the use of both quantitative and qualitative approaches (Creswell and Plano Clark, 2011). The pragmatic approach emphasises that multiple realities exist and that, the researcher's choice of paradigm is dependent on the research questions the study is trying to solve (Saunders *et. al.,* 2009). The pragmatic approach provides for the use of both qualitative and quantitative research methodologies to collect information and make inquiry into complex phenomenon of social and natural contexts (Creswell, 2009; Morgan, 2007). Therefore, the pragmatic research philosophy provides for the adoption of mixed methods for the data collection which opens

the opportunity to be simultaneously subjective and objective in analysing the points of view of the participants (Saunders, *et. al.*, 2009).

The pragmatic approach also helps to provide a foundation where the research avoids engaging in issues of insignificance and focuses on the issues of truth and reality and as such is intuitively appealing (Creswell, 2009; Tashakkori and Teddlie, 2003). A pragmatic approach allows areas to be studied that are of interest, embracing methods that are appropriate and using findings in a positive manner in harmony with a recognised value system (Creswell, 2009). In addition, the pragmatic research approach is multi-purpose in nature; and therefore, a good tactic that will allow questions to be addressed that do not sit comfortably within a wholly quantitative or qualitative approach to research design and methodology. Pragmatic research approaches also perceive issues to be different in different scenarios and permits different views and interpretations of the world.

In the epistemological paradigm, the pragmatic research approach provides the justification and rationale for combining methods and the knowledge of providing tentative answers to research questions for mixed approaches and methods in a study (Johnson, *et. al.*, 2007). The pragmatic research approach, though recent in research philosophy debate, focuses on the problem and tries to find practical solutions with the use of mixed methods. As a result, Saunders, *et. al.* (2009) contends that pragmatism provides a basis for practical research by integrating different perspectives which help to elucidate the data interpretation process in research. Therefore, a pragmatic approach helps to understand the assumptions that underpin the knowledge and inquiry. In addition, it does not classify the research as purely quantitative or qualitative in nature with either a positivist or interpretive philosophy. Hence, a pragmatic approach provides a balanced point between the deductive and inductive perspectives of thinking which offers practical answers for merging different paradigms. As a result, Creswell (2009) suggested that a pragmatic research approach seems to be the most prominent paradigm with a strong philosophical relationship for a mixed method approach. Furthermore, a pragmatic approach provides a better grounding to fully explore the complex phenomenon instead of using a single method approach in the research.

The purpose of the alternative philosophical stances does not comfortably sit within the confines of this research aim and objectives, and the adoption of an alternative would undermine the goal of the work. The pragmatic approach is a better process to answering ‘‘*what’’* ‘‘*why*’’ and ‘‘*how’’* research questions. Therefore, considering the unique features of

this pragmatic perspective and critically deducing from table 3.2, this research adopts a pragmatic stance.

This study is trying to develop a framework to sustainably manage social (public) housing estates through an in-depth exploration and explanation of those issues that had previously left the housing estates not being managed properly. This again is predicated on the reason that the other philosophical prepositions will not properly address the problem. The framework development, for example, involves the understanding and revealing of the exact deplorable condition of the social housing estates that have been provided by the State and Federal Government to the people of the Niger Delta. Further, it authenticates whether the social (public) housing estates are: completed or in-complete; occupied or un-occupied; and completely abandoned; the associated problems; the relevant stakeholders' involvement; and the level of utilisation of the sustainability essential factors; in the area. As a result, the pragmatic proposition provides a better world view for this research; and lends this research to consider case study design as an appropriate strategy in the subsequent section.

Table 3.3: Summary of the Research Designs Perspectives and Stance

Research Designs	**Perspectives**	**This Research Stance**
Design	Archival research; Grounded theory; Experiment; Survey; Ethnography; Case study; Action research.	This research adopts a case study design as it intends to investigate a real world problem in a real- life context.
Strategy	Opinion; Empirical; Archival; Analytic.	Opinion as the researcher investigates a phenomenon in a real-life context.
Method	Multi-Method; Mono-Method; Mixed Method.	Toward mixed method approaches.
Data collection	Literature Review; Structured interview; Semi-structured interview; Questionnaire; Qualitative; Quantitative.	This research stands on: a literature review; semi-structured interview; both qualitative and quantitative data.

3.4. THE RESEARCH DESIGN- CASE STUDY STRATEGY AND THE RESEARCH ALTERNATIVE DESIGNS

Many researchers suggested that the first step to designing and choosing an appropriate research strategy though very difficult is in properly defining the research aim, objectives and questions (Creswell, 2009; Saunders, *et al*., 2009). But, research design within an empirical research may have implicit or explicit design, which shows the logical sequence that connects the empirical data and the initial questions the study is trying to address to the logical conclusions (Yin, 2009). According to Yin (1994, p.19), a research design:

> *"is an action plan from getting from here to there, where here may be defined as the initial set of questions to be answered, and there is some set of conclusions [answers] about these questions. Between here and there may be found a number of major steps, including the collection and analysis of relevant data'.*

As a result, it is argued that a research design is simply starting from a point to end at another point, but between these points, there are many rigorous steps which include data collection and analysis (Yin, 2009). The main reason why research design is vital in the phenomenon to be studied is to provide the situation in which the data collected and analysed does not deviate from the original research questions to be addressed by the study. In this sense, Yin (1994) presented some suggestions that could be useful for any researcher to build a good research design:

- Articulate the objectives and questions of the study and show how the method to be used bears on them;
- Link the objectives and questions to the basic unit of study (e.g. a single case or multiple cases;
- Identify the critical evidence (e.g. interviews, documentation, questionnaires and observations;
- Stipulate the relevant techniques for analysing the evidence, so that the questions of initial interest are addressed in a critical manner.

There are, for example, many different research design alternatives which can be applied in a research study such as: experiment; survey; case study; action research; grounded theory; ethnography; and archival research (Yin, 2009; Saunders, *et. al.*, 2009; Creswell, 2009). As such, a critical distinction between these research design alternatives is vital before choosing a

particular design strategy and it will help to elicit the various potentials of each alternative. This is summarised in Table 3.3 above and Table 3.4 below.

Table 3.4. The Research Alternatives and Purpose in Research Methods

Experiment	This is used for the controlled testing of causal processes (Oates, 2006). However, this research can be used where there is time priority in a causal relationship, or where there is consistency in a causal relationship and the magnitude of the correlation is great.
Survey	This is a data collection tool used to gather information about individuals. This type of research is commonly used in psychology research to collect self-report data from study participants. A survey may focus on factual information about individuals, or it might aim to collect the opinions of the survey takers (Oates, 2006).
Case Study	Although there are numerous definitions of case study. Yin (2009) defines the scope of a case study as follows: "A case study is 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" (Yin, 1994).
Action Research	This type of research aims to contribute both to the practical concerns of people in an immediate problematic situation and to the goals of social science by joint collaboration within a mutually acceptable ethical framework (Rapoport, 1970).
Grounded Theory	This research alternative is concerned in deriving a general but abstract theory of a process that is grounded in the views of respondents using multiple sources of data collection. It has the potential of the constant comparison of data with emerging categories and theoretically sampling the different groups so as to reduce the similarities and differences of information (Strauss and Corbin, 1990).
Ethnographic Research	This comes from the discipline of social and cultural anthropology where an ethnographer is required to spend a significant amount of time in the field. Ethnographers immerse themselves in the lives of the people they study (Lewis 1985) and seek to place the phenomena studied in their social and cultural context (Oates, 2006).
Archival Research	This research design is only concerned with questions which focus on the past and changes over time to be addressed. It tries to focus on contemporary issues but requires much more controls on the way respondents give information of the event (Yin, 1994).

In the case of experiment and survey, they are governed by positivist and objectivism philosophies but case studies, action research, ethnographic research, grounded theory, and

archival research as shown in Table 3.4 are governed by interpretive and constructivism thinking. Experiment and survey takes the positivist and objectivist proposition in terms of epistemological and ontological undertakings. The experiment and survey are undertaken under a controlled environment (Baker, 2001). Also, in experiment and survey, investigating and observing fact and the context is difficult because of the constraint of the number of variables (Yin, 2009). Therefore, these alternatives are not justifiable as the principle research method for use in this study as it will undermine the aim and objectives of this study. However, questionnaire survey method was used to extend explanation of the singularities in this research.

Action research design would not be a better strategy as the researcher is expected to influence and change the attitudes and behaviours of the informants in a phenomenon. This will again detract from the purpose of this research.

Grounded theory research design**,** will not be appropriate to use as its approach allows data to be collected without an initial theoretical framework and tested before a conclusion is drawn (Creswell, 2009).

Ethnographic research design provides an insight into the norms and values of human, social and organisational aspects of social-cultural phenomenon (Saunders, *et. al.*, 2009). In addition, it takes a prolonged time though this may be flexible, particularly when involved in a real-life setting (Creswell, 2009; Burns, 2000). Hence, it will not be appropriate for this research based on its criteria and characteristics which are inconsistent with the nature of this work.

Archival research design only allows research questions which focus on the past and changes over time to be addressed and it is purely limited by the nature and condition of the information held in the archive relevant to the work. For example, some of the data could be withheld for confidentiality reasons or the researcher may be refused access to it. Therefore, in line with this research study, using an archival strategy will necessitate the research analysis to only be on the accessible or available data, which again would detract from the rationale and goal of the research work; hence it is not a suitable principle design method for the study.

Although some of these methods, such as action research, could potentially be used in this study, the aim of this research, the objectives and the type of questions this study is trying to solve, as well as the philosophical perspective which was selected for this study, have

warranted the use of a case study approach in this research. For instance, case studies answer better the ‘‘*how*’’, ‘‘*why*’’ and ‘‘*what*’’ questions of this study which helps to achieve the aim and objectives of the research (Yin, 2009). In addition, the case study method permits multiple sources of evidence including: documentation; archival records; interviews; direct observations; participant observation; and physical artefacts.

The case study strategy therefore provides for the opportunity that the study is undertaken in a manner that incorporates the views of the people (participants) in the field of study (Yin, 2009). A case study method helps to deal fully with all varieties of evidence, for example, interviews, documents and questionnaire (Yin, 2009). Further, the case study design does not provide the opportunity for the researcher to influence or change the attitudes or procedures of the participants or the environment and yet it permits the researcher to explore the behavioural patterns of the participants (Yin, 2009). A case studies method through the exploratory and explanatory strategy offers in-depth details and potential understanding of the various impacts of independent variables on dependant variables. Therefore, since the case study criteria and characteristics provide for consistency and would not undermine the nature of this research, it stands as a preferred design option for this study. In addition, taking an interpretive stance in the pragmatic philosophical perspective, it appears as the most suitable method for conducting empirical research in an interpretive tradition through an exploratory and explanatory case study (Yin, 2009).

Furthermore, as an interpretive, inductive and deductive form of research in an epistemological preposition, case studies explore the details and meanings of experience and do not usually attempt to test a priori hypotheses (Yin, 2009). Therefore, the study is based on an exploratory and explanatory case study approach, using a number of qualitative and quantitative data assembling instruments, including: a questionnaire; interviews; direct observation; and documentation.

The qualitative research model has been chosen because of the basic philosophical assumption that people, their behaviour, and their experience play a significant factor in this research, whereas the quantitative research model has been chosen because of the significant amount of data and feedback it provides, the great access it allows to participants, and the low cost involved. As a result, the case study design offers a better opportunity to develop a framework for sustainable management of the social (public) housing estates in the Niger Delta.

Having discussed the case study design strategy, the following section explains more detail of the case study approach

3.5. CASE STUDY

According to Yin (1994, p.13) a case study is '*an empirical inquiry that investigates a contemporary phenomenon within its real-life context especially when the boundaries between the phenomenon and context are not clearly evident'.* In addition**,** Oates (2006) presented four elements characterised by the case study research:

- Focus on in-depth rather than breadth;
- Natural setting; the instance is studied in its natural setting, not in a laboratory;
- Holistic study the researcher recognises the complexity of social truths;
- Multiple sources and methods; the researcher employs a number of data sources.

Furthermore, Yin (1994) classified case studies into three main categories:

- **A descriptive study:** which aims to describe and analyse a particular phenomenon. Hence, Pare (2001) indicated that social scientific studies prefer to use the descriptive case study more than others;
- **An exploratory study:** this is used to define the questions, as well as to assist a researcher to understand a research problem. Yin (1994) clarified that this method occurs when the research topic is relatively new, or when the topic suffers from a shortage of information and literature;
- **An explanatory study**: this provides for further explanation than a descriptive study. It is "trying to explain why events happened as they did or particular outcomes occurred" (Oates, 2006; Yin, 1994).

From the discussion above and with reference to this study, the aim of this research and the type of questions has justified the use of an exploratory and explanatory case study research. In addition, the lack of evidence and very few studies on this particular area (sustainable social housing estate management in the Niger Delta, Nigeria), led the researcher to use an exploratory and explanatory research framework. These approaches will at first help the research to explore and gain an understanding of the areas that might need an explanatory intervention study.

3.5.1. Single-Case Study Design Verses Multiples-Case Study Design

According to Yin (2009) a case study research may feature a single-case or multiple-cases; but, that a single-case study is appropriate in certain conditions, while, multiple-cases design is better in general (Yin, 2009). However, it is crucial at this juncture to identify a suitable case's design to apply in order to address the research questions that have been posed (Yin, 1994). Although, Yin (2009) and Saunders, *et. al.* (2009) both assert that a single case study design can be approved when the case is a unique proposition. In addition, a single case is appropriate when the case is a critical one to use and tests a well formulated theory. But, the use of a single-case study design for this study would paralyse the achievement of the original nature, aim and objectives of the work, and also, the research questions will not be properly answered. Hence, a single-case study strategy would be inappropriate to be adopted for the work. As such, it is proposed that the research adopts a multiple-case study method to investigate the phenomenon even though single-case study is simpler to implement and more time-cost effective than a multiple-case study (Yin, 2009). A multiple-case study design is a study design that has more than one case within the same study (Yin, 2009). For instance, a study to develop a framework for the sustainable management of social (public) housing estates in the Niger Delta of Nigeria which involves both the state government housing and property development authority, and the federal government housing authority located in the Niger Delta. The rational for adopting multiple cases centres upon the need to ascertain whether the findings of the first case occur in the other case and, as a result enables a broader view from the findings for generalisation (Saunders, *et. al.*, 2009; Yin, 2009). This can be compared with providing a conclusion that can be theoretically replicated somewhere else, and finally, to ensure that data from the fieldwork can provide greater confidence in the research findings (Yin, 2009).

It also provides a better base population for a purposive sample selection. Therefore, multiple-case study design is preferable to single-case study in this research work. However, because this investigation is based on the same units of analysis under two cases (different authorities) in a study with the same manner, the researcher has selected an embedded multiple-case study. The following section will clarify the differences between holistic and embedded multiple-case study designs.

3.5.2. Holistic Vs. Embedded Multiple-Case Study Designs

A multiple-case is one which involves more than one unit of analysis (in the same format) in two or more organisations or projects within a single study. However, as can be seen in Figure 3.3, a case study design involving embedded units is called an embedded case study design,

while a case study design examining only the global nature is called a holistic design (Yin, 2009).

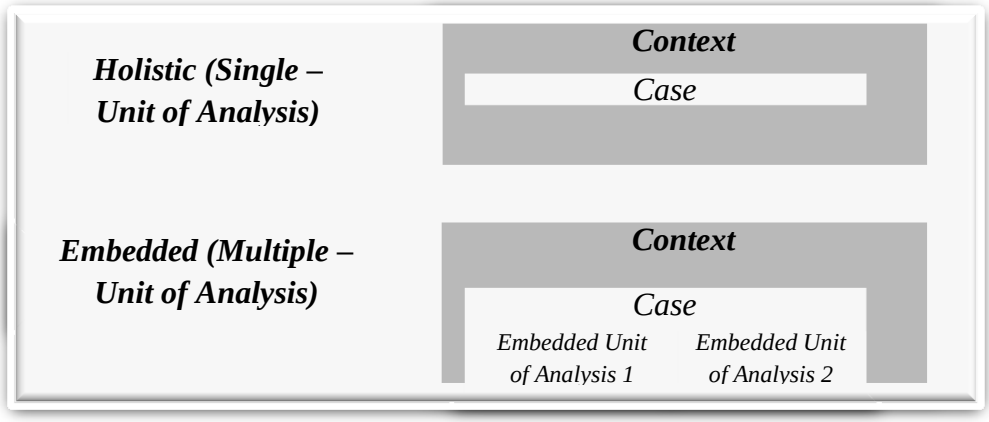

Figure 3.3: Basic Types of Designs for Single Case Studies (Adopted from Yin, 2009)

Following the discussion above and especially in this research, an embedded single-case study design was adopted for the following reasons. Firstly, this approach provides a means of integrating significantly more quantitative and qualitative data into a single research study (Scholz and Tietje, 2002). Secondly, it provides the potential of a deeper understanding of the work under investigation since it contains more than one unit of analysis in the same manner under two organisations (Yin, 2009). This research used all of the available units of analysis and was carried out on the Federal Housing Authority (FHA) and the Rivers State Housing and Property Development Authority (RSH&PDA), which were similar regarding their features and facilities, yet differently owned and managed separately. This means the fundamental case participants in this study relate to: housing estate management staff; professionals/contractors; tenants/residents; and estate community representatives to these agencies.

3.6. THE RESEARCH DATA COLLECTION STRATEGY

This research adopts the multiple methods in an embedded case study design of research exploration and explanation investigations using a convergent parallel design approach of mixed methods as shown in Figure 3.4. The choice of this collection strategy is reliant on the benefit of allowing: the use of pragmatic reasoning; multiple data collection at the same time; collected data analysis independently; and intuitive sensing in the data results. The difficulty this collection strategy poses is when multiple data results are not agreeing, as well as requiring much effort and expertise in the procedures.

However, other options of research data collection strategy do exist such as: parallel database variants; data transformation variants; and data validation variants. These do not sufficiently permit or support the benefits outlined above for a convergent parallel strategy such that the strategy ensures the achievement of the research aim and objectives. Hence, they were not selected for the research as a data collection strategy.

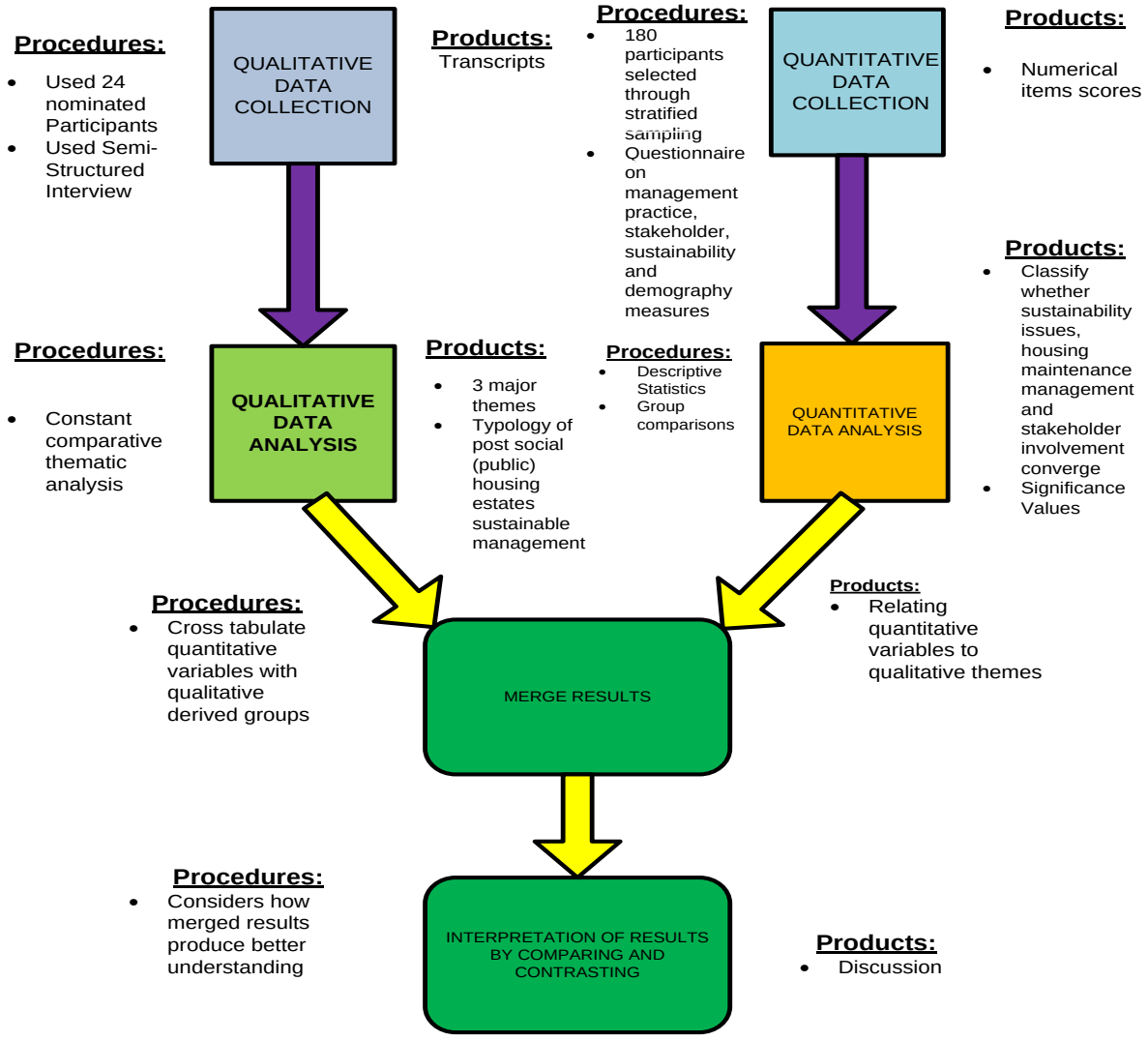

Figure 3.4. Convergent Parallel Design for the Research Study (Adapted from Wittink, et. al., 2006, cited in Creswell and Plano Clark, 2011, p.118).

Yin (2009) asserted that multiple data collection methods give a better image of events than would be provided by any single method. The single method strategy has previously been shown to be insufficient and ineffective to address the present research aim, objectives and

questions. Hence, a combination of qualitative and quantitative sources of evidence (including interviews, documentation, observation and questionnaire) has been selected. Although, no single source has an advantage over the others; rather they are complementary and used together in this present case study research. The primary purpose of multiple sources is to ensure collecting a wide range of data, such that all questions and contexts are addressed in this study. As a result, the study uses the interviews, documents, observations and questionnaires to collect data. This supports the case study strategy, as well as helping to collect in-depth data. The multiple methods provides the opportunity to obtain in-depth information from multiple different sources (Saunders, *et. al.*, 2009) from the potential participants and stakeholders in this complex and multi-dimensional research to focus on how the social (public) housing estate can be managed in a sustainable manner.

This research adopts a cross-sectional study since it is based primarily on interviews, documents, observations and a questionnaire conducted within a limited time frame (Saunders, *et. al.*, 2009).

The proposed data collection strategy provides a better opportunity to evaluate the research findings so they can be generalised or replicated. The multiple methods have the ability to explore the phenomenon and provide an opportunity for interaction between the parties involved in the research. Yin (2009), Creswell (2009) and Saunders, *et. al.* (2009) asserts that data collected through different techniques and sources can justify findings confidence to be high, and the weaknesses of the other instruments are strengthened. In addition, it gives convincing, accurate and reliable results to present, thereby enhancing the interpretation and validation of this research work (Yin, 2009).

The multiple methods explore a human phenomenon in a real context, which in turn, assists in the development of the framework that will guide public and social policy directions (Saunders, *et. al.*, 2009). The subsequent section gives more details on what constitute qualitative and quantitative data collection techniques in a research work.

3.6.1. Qualitative and Quantitative Data Collection Techniques Compared

Qualitative and quantitative approaches are associated with a number of different techniques and are utilized in many social researches (Bryman, 1988). The quantitative approach provides for the objective assessment of realities, while, the qualitative approach provides for a better understanding and exploration of complex issues in a social context.

In the context of this research aim, objectives and questions, as well, as achieving them, data collection is required from different sources. As a result, the multiple methods of data collection are more suitable than any single method data collection which cannot totally capture all the relevant data and information required for this research (Saunders, *et. al.*, 2009; Creswell, 2009).

Researchers, for example, Saunders, *et. al.* (2009) asserted that despite the prevailing differences between qualitative and quantitative data measurement, the need to use both in any research study is often advantageous. In addition, Light (2003) made known that qualitative data is concerned mainly with meaning (materials), while quantitative data was concerned with measurement of data.

Regarding this study, only a combination of qualitative and quantitative data gathering techniques could be used effectively to cover and clarify the questions and see that all contexts are addressed in the thesis. The qualitative and quantitative data techniques allow the exploration and explanation of an individual's point of view, and the observation of realistic life surrounding the phenomenon. The data quest in this research required both qualitative and quantitative data collection approaches. Therefore, the research merges and makes use of multiple data collection methods.

From this approach the researcher was able to foster rich information from the documents, interviews, observations and questionnaire to gain valuable data from a large population (Buabbas and Medjdoub, 2009; Light, 2003; Denzin and Lincoln, 1998). This variety of data sources permits multiple data triangulation (Ingram, 2002; Kimich, *et. al.*, 1991; Patton, 1990).

For this work, four usable qualitative and quantitative sources designed to assemble knowledge from the study under investigation are involved: interviews; documentations; observations; and questionnaire. As a result, it is proposed that qualitative and quantitative data will both have a positive influence on exploring the necessary information for the development of the framework that will guide the sustainable management of social (public) housing estate management.

The next section of the dissertation will decisively define, explain and justify the different instruments deployed in the study, including the number and selection of participants for the research.

3.6.2. Interview

Creswell and Plano Clark (2011), Saunders, *et. al.* (2009) and Myers (1997) classified qualitative interviewing as one of the most important primary data gathering techniques in qualitative research. Oates (2006) additionally clarified that a qualitative interview is a special type of planned conversation between people where the interviewer needs to gain information from the interviewee(s) about a particular topic. According to Saunders, *et. al.* (2009) and Oates (2006) there are three types of interview:

- **Structured interviews:** this technique uses standard questions for all interviewees; the interviewer cannot change from those questions which have been organized previously. According to Saunders, *et. al.* (2009) they are also referred as 'quantitative research interviews';
- **Semi-structured interviews:** this technique requires making use of lists of questions by the interviewer seeking information in the search for research answers. This type of interview is flexible for both interviewer and interviewee. Therefore, it is a non-standardised method and they are also referred as 'qualitative research interviews'. In this type, the question may be varied depending on the flow of discussion and additional questions may be required in order to explore the research questions and objectives in full considering the nature of events within a particular organisation;
- **Unstructured interviews:** in this type of interview, the interviewer gives the interviewees unlimited opportunity to speak about the topic and let them develop their ideas without any interruptions. Therefore, there is no predetermined list of questions to work through with the interviewee in this approach. It is referred to as 'in-depth qualitative research interviews'. This type is also referred as non-directive' and an informal research interview since it is the perceptions of the interviewee's that guides the manner of the interview (Easterby-Smith, *et. al.*, 2008; Robson, 2002).

Following the discussion above, this research work uses semi-structured type of qualitative research interview. Therefore, a discussion of the benefits of semi-structure interviews is provided below together with the justifications for adopting it in this study.

3.6.2a. Semi-Structured Interview

Regarding this study, data collection started first with semi-structured interviews. This was adopted because of the depth of understanding that the researcher pursued and it is characterised by this type of interview. This gave the researcher the opportunity to probe for the views and opinions of the interviewees. Having key themes and sub-questions in advance

gives the researcher a sense of order from which to draw questions rather than an unplanned encounter. Semi-structured interviews gave the researcher the opportunity to prompt and probe deeper into the given situation. According to Saunders, *et. al.* (2009), in social research, interviews should be the first data collection process because it provides researchers with a clear understanding of the environment. As such, the study started with the process of locating the sample frame. The researcher as a Nigerian civil servant then had to visit the various housing authorities identified as a case for this study with a letter of invitation to participate in the research work. The letter further requested that two people be nominated for interview from the organisation/institution and information about the aim of the study with the semi-structured questions was attached. The nominated persons then contacted the researcher through a phone call and in some instances; the researcher had to do follow-up visits to the office for feedback on the letter where the nominated persons were not known to the researcher. The researcher then arranged a time to meet with the nominated participants, exchange contacts details such as: phone number; email address; and agree on a date and time for the interview. This was done in-order to build up their confidence to respond to questions and to introduce to them the types of questions they would be expecting. However, some of the nominated respondents wanted a clear definition of the problem which was provided in the preliminary introduction, but, there was generally a very good response from the respondents regarding the quality of the questions and how the subject affects real life situations.

3.6.2b. Rationale for Preferring the Semi-Structured Qualitative Interview Approach

The research work preference for semi-structured qualitative interview relied on the necessity to appropriately and reasonably address the research aim, objectives, questions and the methodological approaches chosen for this study. However, the following are the reasons for choosing semi-structured interview as well as the rationale for its adoption as suggested by Saunders, *et. al.*, (2009) and Stone, *et. al.*, (1984):

- Allows the respondent a high level of flexibility and freedom;
- Allows participants in the interview the ability to respond through their natural language;
- Allows the subject of interest to the researcher to be covered;
- Allows questions to be formed and asked in an order which seems to arise naturally from the context;
- Allows a face-to-face contact with the participant, which then helps to check and enhance the validity and reliability of the data;

- Semi-structured interviews are less intrusive to participants as it encourages two-way communication. This allows the researcher to judge by face-to-face assessment whether the participants (interviewees) are telling the truth;
- Individuals are interviewed they may discuss sensitive and important issues in area of concerns. This in most cases opens up new areas of concern and leads to more information in the area of research;
- Gives the opportunity for the researcher to build a good relationship with the interviewee which might prove useful in later studies;
- Explores in-depth the types and current housing estate management strategies and practices employed by the Federal Housing Authority and the State Housing and Property Authority and the views of its effectiveness;
- Explores the benefits (real or perceived) and challenges associated with social (public) housing estate management strategies and practices in the Nigerian housing industry.

The semi-structured interview template is shown in Appendix A, it is divided into four sections, and these are:

- Section A: This is aimed at providing general information about the organizations size, the year it was founded, how long they have been engaged in social housing management activities, the assessment of status of the organizations, and to ascertain if Social Housing Estate Management Strategies and Practices (SHEMS & P) are normally considered when managing their portfolio of estate;
- Section B: This is aimed at exploring the current types of Social Housing Estate Management Strategy and Practices (SHEMS & P) in relation to its effectiveness, completed/uncompleted, occupied/unoccupied, abandoned and vandalised in the Niger Delta. Also, the challenges and factors affecting the housing maintenance management style of the estate;
- Section C: This is aimed at exploring the current level and relevancy of stakeholder involvement in the SHEMS & P in the Niger Delta, Nigeria, as well as for the social (public) housing estate to be managed in a sustainable manner;
- Section D: This then ascertains the sustainability issues in SHEMS & P in the Niger Delta, Nigeria, as well as its need to be integrated with good housing estate maintenance management practice and stakeholder participation for the social (public) housing estate to be sustainably managed.

3.6.2c. Interview Sampling

The research qualitative interview sampled, a total of sixteen (16) individual interviews conducted face-to-face in this research. Four were conducted with the management team of the Rivers State Housing and Property Development Authority, and the Federal Housing Authority. Another four were conducted with the housing estate maintenance management professional firms/contractors in both agencies. Another four were conducted with the estate community representatives where the social (public) housing estates are located within the cities mentioned below. A further four were conducted with the tenants/residents occupying the social (public) housing estate, both of the federal and state government own. The summary of the interview sampling is as shown later in Table 3.5.

The reasons behind the choice of face-to-face interview in this research study is that it provides the opportunity to meet with the participant directly which confirms that the person who actually responded was the one the interview was intended for.

The interviews aimed to explore sensitive issues and to get detailed information about the current and future initiatives and methods regarding the sustainable management of social (public) housing estate. It also assisted to direct how the questionnaire would develop and how the questions for the work were designed to gain a wider in-depth understanding of the topic areas. Therefore, it was clarified for all interviewees what was the purpose, objective and the aims of the study. It was also explained to the participants that their names and their responses were confidential and anonymous, as well as they had freedom to decline to answer any question and withdraw at any stage of the interview. Ethical approval details for this are shown in Appendix D.

In the first week of May, 2013, the author travelled to Nigeria to embark on the field work. It was quite different from what the author expected. The author started the interview process the first week on arrival in Nigeria with the plan of holding at least two interviews every day of the week. The author soon found out that making an appointment was very difficult, and even when the appointment was successful, meeting the respondent was also a challenge. Because of the position of the respondents, they were always very busy. Sometimes, in the process of interviewing, other staff would walk in and out of the respondents' offices, which was beyond the control of the respondents and the author. Table 3.5 illustrates the number of participants in the semi-structured interviews. The interviews all took place in the state capitals of Port Harcourt, Benin, Calabar, Yanagoa, Owerri, Umuahia and Uyo because it is predicated that these states account for over 60% of the housing problems in the Niger Delta

(Ebie, 2012). They are also the heart of crude oil activities in Nigeria, and the most convenient places for the researcher and the participants.

Table 3.5: Breakdown of Interviewees Who Participated in Semi-Structured Interviews

FHA	***SHA - RSH&PDA***	***Total Interviewees***
Management Team (2); Professionals/Contractors (2); Tenants/Residents (2); Estate Community Representative (2);	Management Team (2); Professionals/Contractors (2); Tenants/Residents (2); Estate Community Representative (2);	Both FHA and RSH&PD
∑ 8 Interviewees in FHA	**∑ 8 Interviewees in RSH&PDA**	**∑16**

Because of the difficulties encountered during the interview process, some of the interviews went on for as long as 2 hours. On average, each interview lasted 1 hour 30 minutes. The researcher tried to convince some of the respondents to meet at a weekend but that was rejected because they argued that the weekend was the only time they could spend with families and friends.

Despite the challenges, the author managed to engage 16 respondents (8 from the FHA organization and 8 from RSH&PDA organization as indicated in Table 3.5) for the semi-structured interview. At this point, the researcher discovered that most of the interviewees responses have been repeated which therefore concludes that the data collection process had reached the point of data saturation. Saunders, *et. al.* (2009) suggested that from the interviews in such a case is no longer desirable and should be stopped.

3.6.3. Questionnaire

Saunders *et. al.* (2009), Cohen *et. al.* (2007) and Jankowicz (2005) assert that many researchers use a questionnaire tool in their research, because it assists in collecting large amounts of data and when worded correctly requires less skill, resources, time and sensitivity to administer than semi structured interviews. According to Oates (2006) questionnaires are best suited when the researcher for instance: wants to obtain data from a large number of people; wants to ask analogous questions to a group of people; and wants to obtain relatively brief and uncontroversial data from a group of people. A questionnaire might be harder to

produce than some researchers may probably think and believe (Oppenheim, 2000). Also, Saunders, *et. al.*, (2009) state that a questionnaire may be done without consideration of other alternatives such as interview, observation and documentation etc. and it is particularly better for explanatory and descriptive case study than exploratory case study work (Saunders, *et. al.*, 2009). Therefore, any questionnaire technique for a research study needs to take consideration of the above issues so as to achieve the research aim and objectives. For a questionnaire, there are different types which include: internet questionnaire; postal questionnaire; delivery and collection questionnaire; telephone questionnaire; and structured interview questionnaire. But, the choice of either type as identified by Saunders, *et. al.* (2009) is dependent on the following factors:

- Respondent characteristics;
- Confidence in the answers from the respondents;
- Size of the sample;
- Confidence of reaching the respondents;
- Type and number of answers intended to be collected from the respondents;
- Availability of resources and the time to complete the task.

The consideration of these factors in a particular questionnaire will improve the reliability of the data collected and the level of generalisation achievable from the data. As a result, this study uses the delivery and collection questionnaire method. This is chosen because it offers: convenience; less cost; less time as the researcher is conversant with the areas of study; the respondent can be contacted in person; and checked that it is the respondent that actually responded to the questions. It also gives respondents full participation and allows the design of the questions to be simple to understand by the respondent (Saunders, *et. al.*, 2009; Dillman, 2007; Oppenheim, 2000). Above all, the response rate in this type of questionnaire administration method is as high as 98 percent (Saunders, *et. al.*, 2009).

In this study, the questionnaire was divided into four main sections. The first section aimed to gather basic data associated with the demographics of the respondents and in relation to the organisation they work for. The second section aimed to assess the social (public) housing management options, the effectiveness of such and to identify the main challenges facing them. The third section aimed to obtain an understanding of the satisfaction of the respondents towards involving the stakeholders and managing their concerns in the housing management approach normally used and the final section considers the awareness and understanding of the respondents on the issues of sustainability and the potential to merge

sustainability issues, social (public) housing estate maintenance management and stakeholders participation in the management framework for the social (public) housing to be effectively managed in a sustainable manner.

Regarding the design of the questionnaire, the researcher decided to use multiple choice 'tick box' and 'close-ended' questions, adopting the five point Likert-scale rating technique. In fact, it is actually difficult for the researcher to create other complex styles of questionnaires for a number of reasons, such as considerations of cost and time, and also the possible vast differences between the place of study and the researcher's location. According to Oppenheim (2000) closed-ended questions are when "the respondents are afforded a choice of alternative replies, they may be asked to tick or underline their chosen answer(s) in a written questionnaire, or the alternatives may be read aloud or shown to them on a prompt card or a slide". Furthermore, Oppenheim clarified the advantages of the closed-ended question, such as they require little time, no extended writing, low cost, easy to process, useful for testing specific hypotheses and less interviewer training (Oppenheim, 2000). However, Kumar (1999) indicated the fundamental disadvantage of closed-ended questions, this being the information obtained through them lacks depth and variety.

Most questionnaire types have their inherent advantages as well as inherent disadvantages. Therefore, whenever the researcher designs a questionnaire, they should avoid as much as possible incomprehensible questions by way of using simple and clear questions that will be appropriate for the participants to easily respond to.

For the five point Likert-scale used in this research, although other alternatives such as including three, four, seven, and nine point Likert-scale exists in the literature; it provides simplicity to construct the questionnaire which produces a highly reliable scale of subjective/objective judgement, reading and completing questionnaire questions by the participants (Kobbacy, 2013). However, Kobbacy (2013) indicated that the flaws of Likert-scales includes cases that participants may avoid extreme response categories, participants may agree with statements as presented in order to "please" the researcher, portray themselves in a more socially favourable light rather than being honest and issues of data validity may be difficult to demonstrate. But, this research study, irrespective of the flaws relied on the five point Likert-scale as it provides an appropriate ground to answer the research aim, objectives and questions in attempting to develop the framework for the sustainable management of social (public) housing estate in the Niger delta.

3.6.3a. Questionnaire Sampling

In a research study, collecting accurate data is vital and this is preceded by choosing an appropriate sample and sample size representing the whole population (Saunders *et. al*., 2009; Rowntree, 2000). In other words, the sample procedure obtains information from a select part of the population that supposedly possesses the same qualities as the whole (Swetnam, 2005). Therefore, it is important to take into account a number of factors when selecting the sample.

These factors, stated by Swetnam (2005), are as follows:

- Sample is large enough to be significant;
- Representative as possible;
- Defects are acknowledged;
- Rationale for it is produced.

Taking into consideration the above guidelines, and due to the sampling frame (all FHA and SH&PDA staff in the Niger Delta, contractors/professionals firm, tenants/residents of the estate, and the estate community representatives) being large and impossible to precisely state the total population targeted, the study adopted a sampling technique to select and measure a representation of the overall assumed finite population. This procedure reduces cost and effort and is far less time consuming (Bryman, 2008; Cochran, 1963). There are two main sampling methods in social science research that a researcher can implement, probabilistic and non-probabilistic sampling (Creswell and Plano Clark, 2011; Saunders, *et. al.*, 2009). The probabilistic sample is implemented when the total population to be studied is clearly known by the researcher; and therefore, the sample and sample size itself is more likely to be representative of the whole population. While the non-probabilistic sample is employed when the researcher may not know an accurate representation of the total population, it is better than being based purely on judgemental knowledge. Non- probabilistic sampling though is an ineffective technique of generalizations of the outcomes (Trochim, 2006; Oates, 2006); but, Saunders, *et. al.* (2009) asserts that generalisation from non-probabilistic sampling is still feasible.

Subsequent to reviewing the relevant literature and gaining expert opinion, the probabilistic sampling method in terms of the questionnaire administration was deemed much more accurate, representative and precise. This technique involved blending stratified random samples through an accurate sampling frame. The questionnaire's sample was all drawn from the total: estimated staff members employed at the FHA and State Housing and Property

Development Authority (SH&PDA) in each of the nine Niger Delta States; professionals/contractors; tenants; and external housing estate community representatives (Table 3.6 below).

Since, the total sample size of the study was largely unknown and the entire domain was large enough, a stratified simple random sampling was conducted with an assumed population of 350 to calculate the finite population, to bring out strata to which the intervention treatment is then administered. This is determined as thus:

For a finite population according to Cochran (1963) and Israel (1992);

$n = n_0 / (1+ (n_0 – 1) /N)$

Where:

N = assumed population size = 350

n_0 = 385 at 95% confidence level and 5% precision (p) with Z = 1.96.

That is: $n_0 = (1.96^2 \times 0.5 \times 0.05) / (0.05)^2 = 385$

Then for the assumed population of N= 350,

$n = n_0 / (1+ (n0 – 1) /N)$

$n= 385 / (1 + (385 – 1) / 350$

= 180 (approximately) = the targeted population size for questionnaire.

Subsequently, 20% of the total 180 questionnaires were selected for each category having a stake in the social housing estate management in the three states; as indicated in Table 3.6. The researcher believes that this procedure satisfies the attainment of the research objectives, as well as to providing for a wider range of answers to the questions under investigation and maximum variability.

The researcher has good access to the sample as an indigene of the Niger Delta and a lecturer in the Department of Estate Management at the premier regional University (RSUST). Through exploratory interviews for the study, it was easy to obtain the names of people for the questionnaires to be administered to. The questionnaire was administered with a self-delivery and collection method. This method helped to actually check if the respondents were the person who responded to the questionnaire and equally gives the participant the full contribution of the research work. Another justification is the time, available financial

resources and the availability of the respondents to participate in the research work since the questions were made simple and interesting. Another justification is the lack of availability of services that would make other questionnaire administration methods a better choice such as: telephone; email; and electricity. For example, the continuity of electricity supply in the region had been problematic and hence using methods like telephone or email will be problematic to the achievement of the research goal. The postal service is also deemed to be a problem since the questionnaire security and guarantee of delivery will be inactive in the domain because of lack of availability of the required facilities for on-time service deliveries.

Table 3.6. Questionnaire Sampling

States	***Categories of Participants and Number of Questionnaires***					***Total (∑)/ Percentage (%)***
	FHA Staff	***SH&PDA Staff***	***Professionals/ Contractors***	***Tenants/ Residents***	***Estate Community Representative***	
Abia	4	4	4	4	4	20/11.11%
Akwa - Ibom	4	4	4	4	4	20/11.11%
Bayelsa	4	4	4	4	4	20/11.11%
Cross Rivers	4	4	4	4	4	20/11.11%
Delta	4	4	4	4	4	20/11.11%
Edo	4	4	4	4	4	20/11.11%
Imo	4	4	4	4	4	20/11.11%
Ondo	4	4	4	4	4	20/11.11%
Rivers	4	4	4	4	4	20/11.11%
TOTAL	***∑36/20%***	***∑36/20%***	***∑36/ 20%***	***∑36/20%***	***∑36/20%***	***∑180/100%***

3.6.4. Documentation

The documentary information cannot be neglected in this research because of its significance within the subject under investigation. This form is strongly associated with the other data gathering techniques used in the study; the questionnaire and interview strategies. Therefore, this triangulation of data collection methods strengthens the validity of the fieldwork data (Gibson and Brown, 2009). The use of documentary methods refers to the analysis of documents that contain information about the phenomenon (Bailey 1994). Payne and Payne (2004) portray the documentary method as the technique used to categorise, investigate, interpret and identify the limitations of physical sources of most commonly written documents whether in the private or public domain.

Written and audio-visual documents are a suitable data gathering method for any case study research (Yin, 2009). The overall significance of the use of documents is to corroborate and augment the evidence from other sources of data collection, as well as, offering valuable

information with less effort compared to other data collection techniques. But, the documents must be chosen cautiously to avoid the imprecision of data (Yin, 2009). As such, evaluating the documents successfully, as suggested by Scott (1990), the researcher should consider taking into account the following criteria; since it provides a thorough benchmark for any document used in the research work (Bryman, 2008; Macdonald, 2006; Scott, 1990; Mogalakwe, 2006):

- ***Authenticity*** - aims to verify whether a document is genuine, complete and reliable;
- ***Credibility*** - aims to verify whether a document is free from error and distortion;
- ***Representativeness*** - aims to verify whether a document is typical of its kind, and if not, is the extent of its untypical nature known;
- ***Meaning*** - aims to verify whether a document is clear and comprehensible.

In the case of this research, any pertinent written documents and multimedia documents have been collected and analysed. Various forms of documentation were used, including printed, online and visual materials and fieldwork digital photographs on public housing in the Niger Delta. Formal and non-formal documents were found, including: up-to-date and archival statistical documents and records; administrative documents; timetables; a written curriculum; Federal Housing and each State Housing policies; bulletins; brochures; newspaper articles; and magazine pieces. The researcher also examined and analysed: official online documents; television programmes; and programme manuals on public housing estates. A number of the documents were obtained from specific professional estate surveyor and valuers' firms involved in the management of public housing estates and institutions such as the Rivers State Housing and Property Development Authority, Federal Housing Authority, in the Niger Delta region of Nigeria. Other data was available in the public domain: newspapers; magazines; electronic websites; and visual documents. The researcher maintained a personal diary throughout the fieldwork, in which the documents were coded and from which the researcher draws out evidence for the results of the study.

To achieve the reliability of the data, the researcher authenticated that the interviews, observations and questionnaire data collection tools were carried out during the periods indicated in the letter of invitation to participate for interview and questionnaire. The documentation techniques were conducted continuously throughout the period of the academic programme.

3.6.5. Direct Observation

Direct Observation is an information gathering technique that can be utilized within many research methods. The observation aims to collect data about particular behaviours or events or activities through the observer seeing what people do, hearing them, noting, analysing data and establishing deductions (Yin, 2009; Saunders, *et. al.*, 2009; Oates, 2006). The qualitative observation is one of the most important methods used in case study research to gather data, especially in matters of human attitudes and behaviours (Saunders, *et. al.*, 2009; Zayton, 2004). Yin (1994) and Saunders, *et. al.* (2009) acknowledged that preparation for a good observation from the observer can offer unfettered information and add considerably to the richness of the research data. But, observation requires additional efforts to organize, and necessitates further effort to analyse the data collected (Duwadari, 2005). Yin (2009) revealed that direct observation is an invaluable technique. Yin (2009) added that the instrument provides a clear understanding of any teething problems. Therefore, the observation was planned carefully by the researcher in order to collect valuable facts from the observers and the social housing estate. This was done with caution since there are other unpredictable occurrences that may emerge from the observation process if not careful (Babbie, 2007).

Participant observation and non-participant or structured observation are the main observation techniques that may be used in case study research (Saunders, *et. al.*, 2009; Yin, 2009; Walsham, 2006). Yin (2009) described participant observation as "a special mode of observation" in which "you are not merely a passive observer". Non-participant observation is where the researcher observes but does not participate in what is going on in the social sitting (Bryman, 2008). The researcher in this investigation was a non-participant observer adopting observation in the field. The complete participant observer, identified by Robson (2005) and Oates (2006), is one who conceals that the researcher is an observer, acting as naturally as possible, observing everything, but taking no other part in the proceedings. The researcher observed some selected social (public) housing estates including the facilities and services in this estate, in their natural setting. During this observation procedure, and to minimize the researcher's impact on the users or tenants/residents of the social (public) housing estate, the researcher walked around the estate, pretending to be doing other things; but taking digital pictures of the estate and collecting other information from afar based on what was visible to the researcher in the built environment. In addition, field notes were written promptly to avoid forgetting any observation or reasons for a picture to be taken. The reason for this type of observation was to detect the reality of what people actually did in relation to the housing estate condition and management practice rather than what they said they did during the

interview. This helped to reduce the potential stressful effects on the interviewees, despite the fact that the observation technique has been a subject of criticism regarding its validity and bias (Saunders, *et. al.*, 2009; Zayton, 2004). Above all, Saunders, *et. al.*, (2009) stressed that participant observation is good at: examining what is going on; awareness to significant issues; working within an organisation boundary; and experiencing real life situations.

3.6.6 Summary of Data Techniques

Table (3.7) summarized the purpose and respondents for each data instrument that is used for the data collection procedures in this research.

Table 3.7. The Purpose, Respondent and Sample for Each Instrument

Instrument	***Purpose***	***Respondent(s)***	***Sample (N)***
Interview (qualitative)	• To explore sensitive issues and to get detailed information.	• FHA & RSH & PDA management Team; Professionals; Tenants; Estate Community Representatives.	16
Questionnaire (quantitative)	• To obtain data from a large number of respondents.	• FHA & RSH & PDA Management Team; Professionals; Tenants; Estate Community Representatives.	180
Documentation (qualitative)	• To enhance evidence from other sources.	• National Housing Policy; • Niger Delta Region Development Master Plan (NDRDMP); • Rivers State Housing and Property Development Authority Policy. • Land Use Act, 1978	4
Direct Observations (qualitative)	• To strengthens evidence from the other sources above	• Digital Photographs	4

3.7. PILOT STUDY OF DATA COLLECTION INSTRUMENT

Piloting is the term for testing a data collection instrument on typical respondents before the main study is conducted (Simmons, 2006). Once a data collection instrument has been designed, each question in the instrument has to be evaluated by using a pilot study or must be pilot tested before the final administration. This procedure is vital for any data collection instrument in order to evaluate how respondents interpret the questions meaning and also to check if the range of response alternatives are sufficient. Furthermore, it is also important to evaluate how to phrase each question, layout, check the wording in the questions to avoid potential confusion (De Vaus, 2002). Hence, the semi-structured interview and questionnaire questions were collectively piloted. In addition, this pilot testing is perceived differently within issues such as the length of the questions in both the semi-structured interview and questionnaire, ensuring that the questions remains tightly focused, do the questions seem to fit together, and does the questions appear interesting or boring. As such, the questions in both designs for this study were tested by six of the researcher's colleagues. All selected colleagues currently have a good grasp and experience in carrying out questionnaire surveys, as well as most of them being from the Niger Delta or other regions of Nigeria, and therefore, they helped to evaluate the comprehensibility of the questionnaire in the English Language.

At the same time, additional piloting of the instruments was carried out with six staff from the institutions who were representative of the intended population and four from the professionals. The adoption of this method was imperative for the researcher to determine whether there were any weaknesses or concerns that could be eliminated which could present a major threat to the research work. It is through this strategy that certain out of place questions and some deficiencies were indicated in the questions which the researcher remedied. An example was in the area of housing estate maintenance management. One of the changes was in the question's design particularly question 11 (QB11) where the researcher determined to use a tabular format. This allowed the respondents the opportunity to choose a category from ''not at all effect to high effect'' in the possible reasons for the social housing estate condition. Also, a change was made to question 20 (QC20) on the stakeholders' involvement which allowed the use of appropriate words such as: negligible; limited; adequate; high; and not at all; for the question and other related design issues in the instruments. These changes allowed the respondents to have a more clear understanding about the entire research purpose through the questions and to respond as appropriate to each question. The researcher also omitted some personal questions which were unnecessary to the achievement of the research aims and objectives. Furthermore, the researcher added a

sentence in the introduction page indicating the way the respondent could get further information about participation from the researcher or supervisor should this be the case. As such, the researcher and supervisor names and contact details were included. In addition, a sentence inviting participants to receive a summary of the responses when completed, by requesting the respondent to indicate if required and to provide an email address for this feedback, was added. The pilot study testing above all, for example, the questionnaire, suggested that the approach appeared to be an effective instrument for collecting a large amount of data of reasonably basic information in a short space of time. Also, that the instruments layout and its questions were clear, simple to understand, saved cost and time; and therefore, was adequate to address the research aim, objectives and questions on social (public) housing estate sustainable management in the Niger Delta part of Nigeria. The final version of both the semi-structured interview and questionnaire questions are shown as Appendix A and B.

3.8. RELIABILITY AND VALIDITY MEASUREMENT

Reliability and validity are two measurements of data collection procedures and analysis which Yin (2009) emphasised is important when research involves using a case study strategy. In addition, Saunders, *et. al.,* (2009) and Patton (1990) indicate that reliability and validity are two prerequisites that any researcher should be concerned about while designing a study, analysing results and judging the quality of the study since the researcher must reduce the possibility of getting the answer to the research questions wrong.

According to Easterby-Smith, *et. al.,* (2008, p.109):

> *"Reliability is the extent to which your data collection techniques or analysis procedures will yield consistent findings and can be assessed by posing the following three questions; (a) will the measures yield the same results on other occasions?; (b) will similar observations be reached by other observers?; and (c) is there transparency in how sense was made from the raw data?*

However, according to Saunders, *et. al.,* (2009, p. 157):

> *''Validity is concerned with whether the findings are really about what they appear to be about; and is the relationship between two variables a causal relationship?*

Robson (2002) indicates that there are four possible threats to the reliability of the collected research data, as well as, the results and include: subject or respondent error; respondent bias; observer error; and observer's bias. While the threat for validity is related to: history; testing; instrumentation; mortality; maturation; and ambiguity; of the research data collection procedures and analysing techniques used in the study (Robson, 2002). The indispensable purpose for this procedure is to measure the error of the research instruments and its data (Sproull, 1995) and then use it to establish the credibility of the research findings (Saunders, *et. al.*, 2009). As such, measuring the instruments may result in an outcome of the research findings being either both reliable and valid (most preferable), or reliable but not valid, or valid but not reliable or neither valid nor reliable (less preferable). Therefore, all instruments that are used in this study should show certainty of evidence, and at the same time indicate the level of the accuracy and consistency in order to gain dependable data. In order to reduce any potential errors in this research, the researcher has adopted different approaches such as those highlighted below in tackling the reliability and validity of the research data and findings which make the entire work credible:

- Using a number of multiple quantitative and qualitative sources of evidence, including interviews, observation, documents and questionnaire;
- Being present during the distribution of the questionnaires, emphasising and trying as much as possible, to describe the questions to the participants, and understanding the way they understood the questions;
- Providing a sample big enough to reduce any potential noise. These approaches: triangulate; combine; and compare; all the data gathered, and by doing that, strengthen the validity and reliability that came from the interviews and questionnaire and/or other data sources;
- By using simple, clear, common language that is less time consuming in all the questionnaire and interview questions.

In addition, Yin (2009), Saunders, *et. al.*, (2009), Oates (2006) and Patton (1990) warranted the use of multiple data sources, particularly in case study research and attested that a triangulation approach could generate varied and precise results. This is as exemplified by Yin (2003) in Figure, 3.5 below.

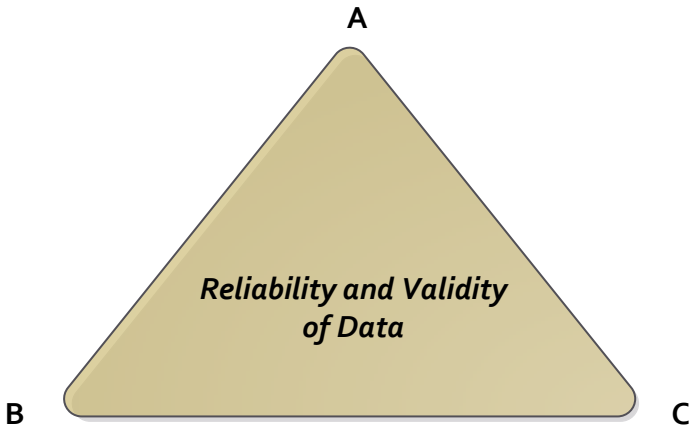

Figure 3.5. Multiple Data Triangulation (Adapted from Yin, 2003)

Where:

A) Multiple Qualitative and Quantitative Sources of Evidence (including interviews, questionnaires, documentation and direct observation);
B) Researcher being present during the distribution of the questionnaires to clarify and describe every single question to the respondents;
C) Sample sizes are large enough to reduce any possible error.

3.9. GENERALISATION

According to Saunders, *et. al.*, (2009), Generalisation: *is referred to as ''external validity''*. It is therefore concerned with the extent to which research results are generalisable; implying whether research results can be applicable to other research scenarios or not. This is reinforced with the assertions of many researchers such as Saunders, *et. al.,* (2009) that generalisation of research findings which use a case study strategy in data collection and analysis is not possible, but, Yin (2009) asserted that generalisation in case study research is always viable and does occur in research work.

For this research, the generalisation of the findings is limited within the context of the Niger Delta part of Nigeria which this research focuses on. It is believed that all the Niger Delta States had virtually the same: cultural norms and values; housing design and management types; environment; overpopulation; and under developmental; problems. But, generalising to other parts of Nigeria or Nigeria at large will require a further study which places the same issues in that context using the findings of this research study because Nigeria is a country with many cultural and religious settings and beliefs. No part of the proposed research methodology was selected with the intention of increasing/improving the generalisation of the

research results. However, the selected research methodology has had no perceived detrimental effect on the generalisation of the results per se.

3.10. TRIANGULATION OF DATA

The major objectives of the semi-structured qualitative interviews were to explore social (public) housing estates in the Niger Delta, Nigeria, as well as, to obtain in-depth information about their maintenance management, stakeholder involvement/participation and sustainable development/sustainability issues regarding social (public) housing estate sustainable management. The findings obtained from the interviews are compared with the questionnaire surveys results, literature review/documentation and direct observation findings. This process of contrasting and comparing results of a particular case with the results of another case is known as triangulation (Yin, 2009; Bailey, 2007). From the above discussion, Figure 3.6 illustrates the triangulation framework for the research work.

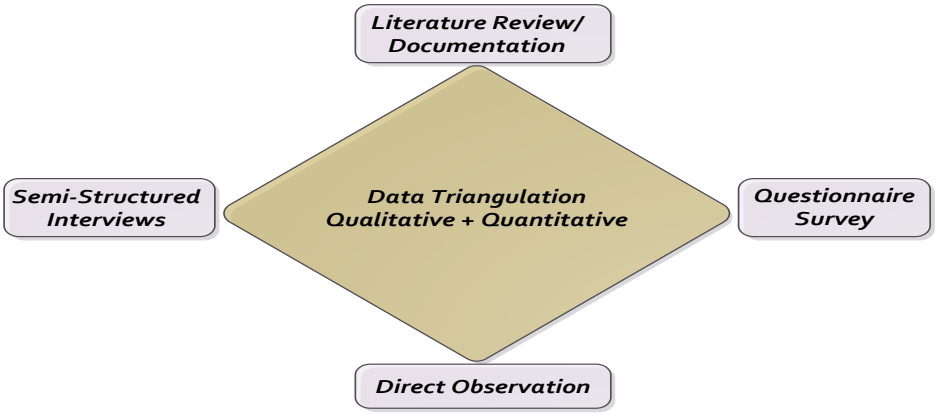

Figure 3.6. Triangulation of the Research Data Results Process

The two goals of triangulation are convergence and completeness - linking arguments and evidence (Yin, 2003). According to Thurmond (2001), triangulation is the combination of at least two or more theoretical perspectives, methodological approaches, data sources, investigators or data analysis methods. In addition, Saunders, *et. al.*,(2009) asserted that triangulating sources of data or data collection methods ensures that the data are actually telling the researcher what the researcher thinks they are telling the researcher. In this research study, a data source triangulation approach was adopted in order to comprehensively interpret the data in the context in which it is applied (Denzin, 1989).

3.11. FRAMEWORK DEVELOPMENT

The formulation and development of the framework for this research study required a meticulous review of some existing frameworks, their implications, and their strengths and weaknesses. Though, not necessarily in the specific area of this research, but with frameworks developed in other subject areas deemed related, relevant and worthy of adopting. In addition, it is also deduced from the aim, objectives and limitations of the research work as well as a careful literature review that a framework would be formulated or developed taking into account the objectives of the research work and the context of its application. This study considered the systems thinking approach in the development of the framework, where the elucidation of the framework is not limited to the objective of the study but expands its sights instead to the bigger picture. This allows this study to determine the modus operandi in reality, noting the position and permeability of the boundaries of each unit of the system to the entire system to be built up. All of these criteria assisted the researcher in this study to develop guidelines on the framework for the sustainable management of the social (public) housing estate in the Niger Delta of Nigeria. However, framework development research by Buckley, *et. al.,* (1976) suggests that the use of both semi-structured interviews and surveys is a good procedure for framework development.

3.11.1. Framework Validation

Validation means that a guideline is good enough for its proposed use for the reason that it meets particular routine needs (Edward, 1996). Validation in this scenario is not a method for testing a precise premise or for certifying the certainty of current scientific considerations, nor is it a required action of every framework development (Edward, 1996). However, a final framework for this study is to be developed for the Federal and State Housing Authorities and others to use in the sustainable management of social (public) housing estate in the Niger Delta region of Nigeria. Piloting the framework is used to validate it through interviewing ten (10) respondents with five (5) respondents each of the Federal Housing Authority sector and the State Government Housing Authority sector on a face to face basis. This is particular to those with active involvement in the housing estate management and with 10 years and above experience. Saunders, *et. al.,* (2009), Guest, *et. al.,* (2006) and Yin (1994) opined that interviews should be stopped when they reach a point of saturation, which in this case was ten (10). It was the point at which the researcher acknowledged that all the respondents were providing the same answer and information to the same questions asked. The questions were put to the interviewees to find out their opinions of the framework contents, simplicity of use

and understanding, and if it answers the real life problem this study is trying to address. This process took about twenty (20) minutes with each interviewee.

3.12. ANALYSIS OF THE CASE STUDY DATA EVIDENCES

Yin (2008) emphasised that analysing case study evidence is difficult since how to do it is yet not fully defined. This allows the researcher to use a series of methods reflecting backwards and forwards on the existing data and the new data that will be generated. Data analysis is a process that includes: examining; categorising; tabulating; or else recombining the data; so as to address the initial intention of the research work (Yin, 1994). For this study, a coding method was used for both qualitative and quantitative data from the fieldwork. Coding is a strategy that retrieves and generates categories from the field notes on the questionnaires responses, interviews transcripts, direct observations and documents, put into systematic patterns for meaningful interpretation and summarised into words (Saunders, *et. al.*, 2009; Yin, 2009; Richardson and Morse, 2007). The coding method postulated by Miles and Huberman (1994) was used and followed, which emphasises an iterative reading of the responses, extracting the themes and patterns by examining the frequencies, similarities, differences, and the relationships between the responses of the data segments. The challenge was to arrive at the themes from the various similar and different segments of the data within and between the interviewees. The coding system provided a solution to this.

Regarding the qualitative interviews, the purpose of analysing the data was to determine the categories, relationships and assumptions that inform the respondents' view of the world in general and of the topic in particular (McCracken, 1988). As such, the interview data was first transcribed after organising all relevant documents and visual information. They were then put into a folder created with excel and office software and coded with assigned labels for quick recognition by the researcher and the analysis software for further analysis. This was done to promote anonymity of the information and security of the data. Thereafter, Computer Assisted Qualitative Data Analysis Software (CAQDAS), NVivo 10 software was used. Although, other alternatives of computer aided qualitative data analysis software exists such as: ATLAS.ti^{m}; Hyper RESEARCHTM; and QSR N6^{tm}. Nvivo 10 offers flexibility and simplicity and is an excellent tools for searching (Saunders, *et. al.*, 2009). It is recognised that all CAQDAS software packages offers similar benefits as to the structuring of the research work; the relationship and interaction of the data; exploring of the data; coding and retrieving of the data, the data management and organisations; interrogations of the data and data outcomes (Saunders, *et. al.*, 2009; Bazeley, 2007; Lewins and Silver, 2006).

NVivo is also influential software with a wide range of searching tool possibilities and using NVivo software in this data analysis aids in meeting the aim and objectives of this work. Nvivo 10 helps to manage the date collected from the field by organising and keeping track of all the recorded information. It also provides the opportunity to manage the research ideas through organising and aiding rapid access to conceptual and theoretical understanding generated in the line of this study, as well as, the information that supports it while still retaining ready access to the context from which the data appeared (Bazeley, 2007). Another significant reason for the use of NVivo in this research is the premise that it offers the opportunity to query the data which further allows proper data interrogation. It offers the benefit to graphically show cases, ideas, concepts as they are built from the original data, their relationships, and assists to present it in models and matrices. Finally, the NVivo software provides the opportunity to present a concise and logical report from the cases, ideas and information from the original data together with the understanding gained from the data and the process through which the conclusion is arrived at (Bazeley, 2007).

However, there are concerns that the use of this method brings doubts and fears in the data analysis procedures (Gilbert, 2002), but there are widely held perceptions that using computer software such as NVivo 10 in qualitative data analysis assists to ensure a more rigorous analysis in terms of completeness, attentiveness and methodological robustness. Before the advent of this software, qualitative data was manually analysed but the reasoning that it is time consuming and full of other human errors such as data repetitions remains a problem (Bazeley, 2007). This is not to say that this study completely avoids using additional manual visual analysis in analysing the field data.

3.12a. Overview and Procedure for the Study of Qualitative Data Analysis

A qualitative interview approach as earlier mentioned provides for a better understanding and exploration of complex issues in a social context; and also provides a sufficient and an effective instrument that enables the researcher to develop a sufficient level of detail from the interviewees in the natural setting (Saunders, *et. al.,* 2009; Yin, 2009). The study extracted the opinions and perceptions on sustainable development, housing maintenance management and stakeholder involvement amongst housing estate management officers, residents/tenants, professionals and housing estate community in the management of State Government and Federal Government social (public) housing estates in the Niger Delta region of Nigeria.

This is achieved by the analyses of data from semi-structured interviews held with nominated interviewees from each housing authority and the external social (public) housing estates environment using content analysis tools. The emphasis was on determining a framework that will be used in managing the social (public) housing estate in a sustainable manner. It assesses the current practice in managing this sector, the relevance and level of involvement of the stakeholders of the Federal and State housing estates in their management, and ascertains whether the sustainable principles inclusion in the management is necessary. The Federal Government and the State Government are predominantly the major social (public) housing estate providers, as well as providing the post-construction management. The sample interviewed consisted of sixteen (16 Nr) social housing estate management stakeholders including: Federal and State Housing Estate Management Team; Professionals/Contractors; Tenants/Residents; and the External Estates Community Representatives in the ratio of 4:4:4:4 respectively (*see* Table 3.5, page 120). The selection of the respondents was based on a letter of invitation to participate in the research sent to their respective offices and associations, with a follow up telephone call and personal visit to the nominated persons /respondents. A total (20 Nr) had been nominated and contacted by the researcher, four (4 Nr) nominees were not able to participate within the period earmarked because of official engagements. The respondent sample is small; yet it was deemed satisfactory for the study since it consists of a reasonable balance and achieved a point of data saturation (Saunders, *et. al.*, 2009) between the Federal and State Government housing estate management staff team and other partakers in current management practice of social (public) housing estates.

Several questions were put to the respondents identified within each sample organization, during pre-arranged semi-structured interviews. The 'semi-structured interview questions' were made up of two parts. The first part (A) assessed the respondents' status and length of involvement in the authority social housing post-construction management. The second part (B) is further subdivided into three main parts which then try to assess: current housing maintenance management practice; the relevance of stakeholder involvement in the management practice; and the need to be aware, understand and bring the essential sustainability factors into the housing estate management approach (*see* Appendix **A** for the semi-structured interview template).

The analysis of qualitative sources such as these interviews is contended as being difficult even though the analytical techniques may be well developed and defined (Yin, 2009;

Saunders, *et.al*., 2009). At the same, the importance of the process of analysis of such generated data cannot be overemphasised, which in this sense followed two major processes facilitated through the use of Nvivo 10 software packages such as:

- Creating Interview Transcripts;
- Generating Thematic Framework nodes and/ or Pattern coding.

To gain more in-depth knowledge and understanding of the generated qualitative data, the creation of interview transcripts were the first phase undertaken in the process of analysing the qualitative data, within which the digital interview files were converted into fully transcribed, word processed documents. This was followed with the second phase of the process which involved finding or creating thematic framework nodes. The iterative pattern coding within the interviews is illustrated in Figure 3.7. This is a process that employed re-reading the transcribed words of the interviewees and assigning units of meaning to the descriptive statements (nodes), which were aggregated to the respective thematic framework or group; and the various thematic frameworks or groups, were then coded. The processes were modified through an iterative reading and content analysis which resulted in the following twenty-two (22 Nr) thematic and sub-thematic nodes summarised from Figure 3.8 below:

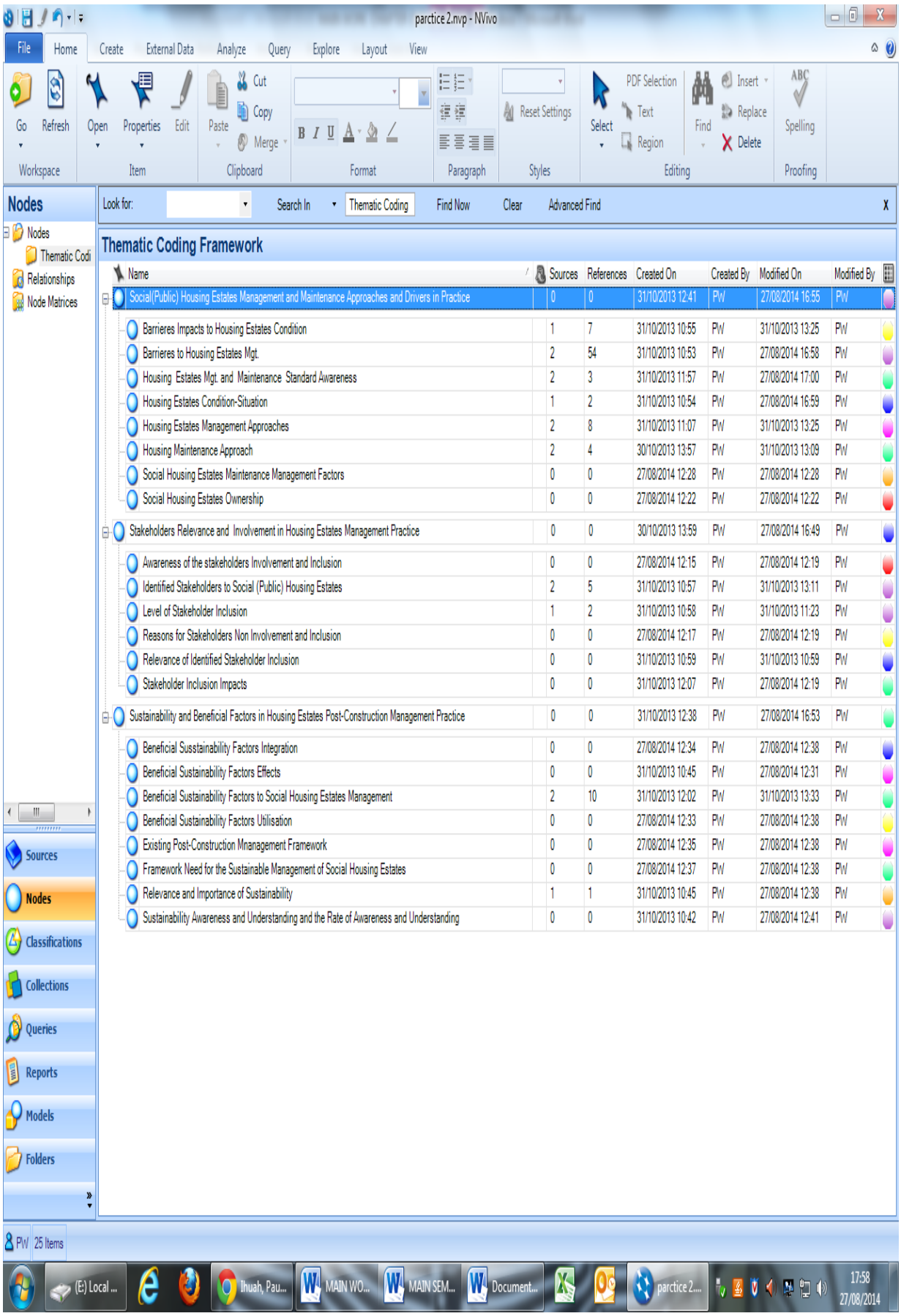

Figure 3.7. Thematic Framework Creation Process

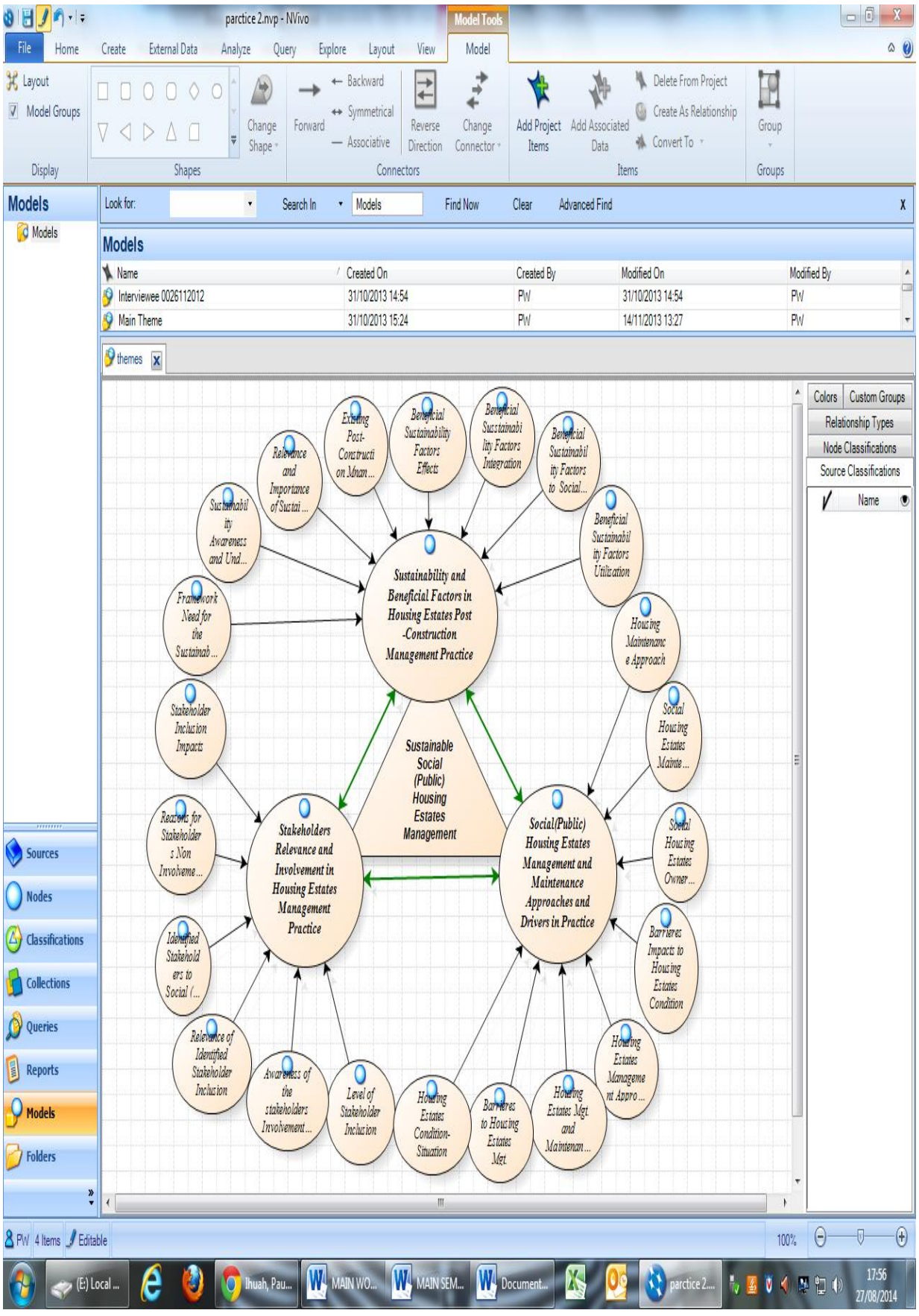

Figure 3.8. The Main Thematic Framework Nodes and Sub-Nodes

- Essential Sustainability Factors Effects;
- Existing Post-Construction Management Framework for Social Housing Estates Sustainability;
- Framework Need for the Sustainable Management of Social (Public) Housing Estates;
- Sustainability Factors Integration in Social Housing Estates Management Practices;
- Sustainability rate of Awareness and Understanding in Housing Estates Post-Construction Management;
- Beneficial/Essential Sustainability Factors to Housing Estates Post-Construction Management;
- Relevance and Importance of Sustainability in Housing Estates Post-Construction Management;
- Beneficial Sustainability Factors current Utilisation in Social Housing Estates Management Practice;
- Housing Estates Management Approach;
- Housing Estates Maintenance Management Approach;
- Housing Estates conditions and Situations;
- Problems and Factors Affecting Housing Estates Maintenance Management;
- Social Housing Estates Ownership;
- Feasible Factors Impacts on Social Housing Estate Development Situation;
- Barriers Encountered in Social Housing Estates Post-Construction Management Practice;
- Maintenance Management Standard Awareness;
- Stakeholder in Housing Estates Post-Construction management;
- Stakeholder Inclusion and Engagement level in housing estates Post-Construction Management;
- Relevance and Importance of Stakeholder Integration in Housing Estate Post-Construction Management;
- Assessing Stakeholders' Impacts in Social Housing Estates Management Practices;
- Reasons for Stakeholders Non-inclusion in Social Housing Estates Management Practice;
- Awareness of Stakeholders Involvement/Inclusion in the current Social Housing Estates Management Practice.

The above process assisted to define the various descriptive nodes using the interviewees' perceptions, as well as helping to draw precise conclusions on each theme based on the generated data findings. Furthermore, in order to clarify and authenticate credibility, reliability, coherency and dependability of the emerged findings, the researcher adopted the spirit of presenting some of the interviewee's statement as verbatim quotes in the analysis. This, Gilbert (2006) and Bazaley (2007) opined is a better technique to substantiate and strengthen the perceptions of an interviewee in a particular quest.

The study full data analyses of the semi-structured interviews evidence are presented in chapters: five; six; and seven; of the research using the emerged themes above, as applicable to and capable of answering specific research objectives.

3.12b. Overview and Procedure for the Study of Quantitative Data Analysis

The questionnaire data, according to Seale (1999) fills the gaps in knowledge which could not have been done with interview alone, hence, helping to provide more explanation to the findings of an interview. It will be analysed by statistical analysis software- Microsoft Excel and SPSS 20.0. This software method of analysis will help to identify and examine the relationships, similarities, differences and trends in the collected data using non-parametric statistical tests because of its robustness in application (Saunders, *et. al.*, 2009). Bryman and Cramer, (2005) identified that by using quantitative analysis techniques for a large number of data (questionnaires) the researcher can avoid bias and gain precise evidence which encourages the use of SPSS in this study.

Consequently, this present research, whilst acknowledging that quantitative data collection provides for the analysis of the generated data for the objective assessment of realities; the research moves to the decision of collection of quantitative data which is informed and reinforced by the convergence of preliminary outcomes from the qualitative data analysis. The choice of this approach as earlier underlined is on the premise of priority, timing, cost, level of interaction, and the procedure for mixing both strands (Creswell and Plano Clark, 2011). A total of 180 (Nr) questionnaires were administered to the stratified participants that were drawn from the management team; professionals/contractors, tenants/residents and external estate community representatives in both Federal Housing Authority and States Housing and Property Development Authority. But, a total of 100 (Nr) completed questionnaire responses were received, representing an overall response rate of 55.56%. Kobbacy (2013) suggests (for a questionnaire sample population of this size), that the response rate is considered acceptable. The questionnaire sample is contained in **Appendix B** to this research. The full analysis and

results of the quantitative evidence are presented alongside the other data collection instrument sources in the following chapters: four; five; six; and seven of the study.

3.12c. Collected Data Reliability/Viability, Normality and Significance Test Instruments

The research in order to statistically demonstrate the reliability, credibility, representativeness and coherency of the data gathered, further adopted the following procedures in the data analyses. According to Pallant (2007), checking the reliability and validity of the scale used for data collection and measurement to establish if all the items contained in the instruments and within the scale are consistent, as well as examination of whether they are all measuring the same underlying construct, is necessary. Pallant (2007) and DeVellis (2003) opined that such data reliability tests should have results of values above 0.7 before their acceptance. The reliability test analyses of the items are presented in each chapter (five, six and seven) of the study and decisions regarding reliability, consistency, etc. are made based on the benchmarked value above.

Another procedure utilised in the preliminary data analysis stage is the normal distribution analysis test, which is presented in each chapter to verify the normality of the generated data. The main purpose is to inform the researcher of the study the knowledge to choose the appropriate statistical test of significance in testing the data. Pallant (2007) and DeVellis (2003) argued that this approach and process implementation is a necessary procedure in order to determine whether to use a probability test measurement or non-probability test measurement. For this study, all the variables in each section when tested have proved to be non-normally distributed data. Hence, the adoption of a non-probability tests of significance, and especially the use of Spearman's correlation coefficient to test the findings significance in the research using the relevant variables of interest.

The Spearman's correlation coefficient is a statistical measure of the strength of the dependent variable either never increasing or never decreasing as its independent variable increases between the paired data (Pallant, 2007; Kendrick, 2005; DeVellis, 2003). It is denoted by and is by design constrained as thus: $-1 \leq r_s \leq 1$. However, its interpretation is similar to that of Pearson's correlation coefficient, which emphasises that the closer the r_s is to ±1, the stronger should be the relationship *(http://www.statstutor.ac.uk/resources/uploaded/spearmans.pdf)*. Hence, it is an effect size that can verbally describe the strength of the association using the guide provided in Table 5.4 (*see Chapter Five, page 178*) for the absolute value of r_s. Nonetheless, Spearman's correlation coefficient principle holds that the variables should be: an interval or ratio level or ordinal; monotonically related; and no requirement of normality.

Additionally, the Relative Importance Index (RII) Analysis and Cumulative Percentage calculation process was adopted in some questions. The Relative Importance Index is the balanced input each independent variable makes to (the dependent variable) by considering both the direct effect and its combined effect with the other independent variables, with the dependent variables (Johnson and Lebreton, 2004; Luchman, 2014). Hence, in the study data analysis, its application was to assist to rank order the predictive usefulness of independent variables in a particular dependent variable of concern (Johnson and Lebreton, 2004; Luchman, 2014; Budescu & Azen, 2004). Cumulative percentage calculations give the running totals of each variable category to the overall variable (Kendrick, 2005). This is achieved by adding the frequency of response of an individual category to the immediately preceding one or all of the preceding individual categories, and dividing by the total variable frequencies (N) and multiplying by 100 (Kendrick, 2005). Therefore, in the research circumstance, it assists to provide a useful prediction and interpretation of the combined effects of all the independent variables on the dependent variable, as well as further assisting to provide a rank order within each category of variables.

The entire analysed results of both the qualitative and quantitative data were triangulated using content analysis since the application in this study allows such conceptual and logical reasoning (Robson, 2005).

Finally, a ***"Research Ethics"*** approval was applied for this study through the College of Science and Technology of the University of Salford, and was consequently approved before the commencement of the fieldwork of the investigation. A copy of this is attached as Appendix D.

3.13. SUMMARY OF CHAPTER

This chapter demonstrates the various assumptions and philosophies underpinning the research. It further underlined the pragmatic philosophical stance in the research process as the best option to this study, and this informed the use of qualitative and quantitative approaches (mixed methods) of inquiry, as well as a case study strategy (exploratory and explanatory) in a single-case embedded unit of analysis, and the collection of data through multiple sources (Convergent Parallelism). The chapter demonstrates the advantages of the various themes and further underscored the benefits of data: triangulation; reliability and validity; generalisation and framework development and the validation in scholarship.

The chapter defines that the process encompasses the semi-structured interviews and questionnaire distribution in the FHA and SHA. Especially: the staff (management team); contractors/professionals; tenants/residents; and external estate community representatives; of both institutions. Sixteen (16) participants were interviewed on a one to one basis plus one hundred and eighty (180) self-administration and collection questionnaires. The chapter also defined the research techniques for data analysis such as NVivo 10 and SPSS 20.0 packages and that the choice is based on the merit to answer and achieve the aim and objectives of the present research study with multiple methods. In addition, it defined the Relative Importance Index (RII) and the cumulative percentage, which both aim to assist in variable order ranking in the research. Finally, the chapter demonstrated that the entire study embraces a more interpretive stance than a positivist stance in pragmatic world reasoning, as well as the research processes in the analysis and interpretation of the data to arrive at the study findings.

The next chapter presents the specific contextual background information on the study: scope; case studies; and the empirical investigation on all the respective units of analysis in the study.

CHAPTER 4: THE SCOPE AND BACKGROUND JUSTIFICATION TO THE CASE STUDY AREA

4.1. INTRODUCTION

The chapter considers that the present research is limited to areas of social (public) housing estate management and sustainability with reference to Nigeria and especially the Niger Delta. As earlier mentioned, the social (public) housing estates are those built and owned by either the Federal or State Governments. In this chapter, the Nigerian and the Niger Delta context is discussed under the headings: socio-demography; politics; and economy; before presenting some of the preliminary data and findings generated from the fieldwork. The chapter also defines the background information and responsibilities and functions of the FHA and SHA, and closes with an empirical investigation into the study respondents' demographic information to establish data: comprehensiveness; credibility; trustworthiness; and coherency.

4.2. BACKGROUND OF NIGERIA

4.2.1. The Socio-Demographics of Nigeria

Nigeria is situated along the Atlantic coast of West Africa bordered by the Gulf of Guinea, and the countries of: Benin; Chad; and Cameroon. Nigeria has a total area of 923.768 km^2 (land area - 910,768 km^2 and water area - 13,000km^2) as shown in Figure 4.1 below, with a population of approximately 140-160 million people (NNPC, 2006; Ebie, 2012). Of this population figure, 51 percent is male and 49 percent is female (NNPC, 2006).

The river Niger and Benue are the major rivers, which flow through the southeast to empty from the Niger Delta into the Gulf of Guinea. The climate varies from equatorial to tropical and arid conditions. Nigeria is one of the most populous countries in Africa and comprises of many different territorial locations with more than 400 ethnic languages of which only three are officially recognised (Hausa/Fulani; Yoruba and Igbo). The official national language of Nigeria other than the ethnic languages is English (Federal Republic of Nigeria, 2012).

The Nigerian National Population Commission (NNPC) census figures in 1952 showed that approximately 10.6% of the total population lived in cities, but when compared with that of 1963 and 1991, these figures had increased to about 19.1% and 36.3% respectively. Following the much more recent and current provisional NNPC (2006) census results, it indicates that the country's annual total population growth rate is 3.2% over the 1991 census.

This accepts that the urban growth rate is normally much more than the rural growth rate, where some cities such as Federal Capital Territory (FCT)-Abuja is growing at the rate of 9.3% (Federal Republic of Nigeria, 2007; Ajanlekoko, 2001).

Figure 4.1 Nigeria Physical Features and Boundaries (Map of Nigeria, 2013)

In terms of its territorial geography, Nigeria is comprised of the southern part consisting of the Yoruba and the Igbo regions and the northern part predominantly the Hausa/Fulani. This division into these parts has been the basis of the political power sharing relationships in the country since Independence in 1960 (Omeji, 2006). In 1963, a fourth region – the mid-western region was defined from the western areas. In 1967, at the beginning of the Nigerian civil war, twelve states were created out of these four regions for political and military administrative reasons. By 1976 seven additional states were created and two more were created in 1987 to make a total of twenty-one (21) states. But this was not the end, as it was followed by a further nine and six states created in 1991 and 1996 respectively making a current total of thirty-six (36) states excluding the Federal Capital Territory (FCT)-Abuja. These states and the FCT are now sub-grouped into six (6) geopolitical non-administrative regions namely: South-South; South-East; South-West; North Central; North-East; and North-

West; as shown in table 4.1. The map shown in Figure 4.1 above identifies the current thirty-six (36) states, the federal capital territory and the six (6) geopolitical groupings.

Table 4.1.The Classification of the States into Six Non-administrative Geopolitical Regions of Nigeria

S/n	Regions	States
1	North Central	Abuja (FCT), Benue, Kogi, Niger, Nassarawa, Kwara, Plateau
2	North - East	Adamawa, Bauchi, Borno, Gombe, Taraba, Yobe,
3	North - West	Jigawa, Kebbi, Katsina, Kano, Kaduna, Sokoto, Zamfara
4	South - East	Enugu, Anambra, Ebonyi, Abia, Imo
5	South - South	Akwa Ibom, Rivers, Cross-River, Bayelsa, Delta, Edo
6	South - West	Lagos, Ogun, Osun, Ondo, Ekiti, Oyo

Source: Compiled by Researcher (2013)

In addition, the number of local government areas (LGAs) in the country has also been on the increase in recent years. This emerges as a result of the decentralisation policy and the episodic increases in the number of states, 145 LGAs were created in 1989 and in 1996 an additional 325 LGAs were created giving the total current number of LGAs in the country as 774 (NDRDMP, 2007; NNPC, 2006). While the capitals of many states are being developed into medium-sized cities, the headquarters of these local government areas are being upgraded and developed as centres of small scale manufacturing and commercial activities, in addition to their traditional administrative and service functions (Ndubueze, 2009; Nwaka, 2005).

Religiously, Nigeria is 45 percent Christian, 45 per cent Muslim and the remaining 10 per cent practice other religions (Federal Republic of Nigeria, 2012).

4.2.2. Economy

Nigeria is an oil-rich country and has depended on oil production for the past 40 years with major foreign earnings from crude oil exports, and is described as a ‘‘monoculture state’’ (NDRDMP, 2007; Omeje, 2006). The oil revenues approximately provide 95 per cent of the Federal Government revenues and 99 per cent of the annual foreign earnings with more than 72 per cent of this revenue used for budgetary purposes annually (NDRDMP, 2007; UNDP, 2006; Ukwu, 2000; World Bank, 1997).

Nigeria has a per capita Gross National Product (GNP) of $260 per year, gross domestic fixed capital investment of 40 per cent and daily crude oil production of 2 million barrels with

crude oil reserves of 34 billion barrels (offshore and onshore), mostly in the Niger Delta region (NDRDMP, 2007; Omeje, 2006; USEIA, 1999; Human Right Watch, 1999; World Bank, 1997). Both poverty and unemployment levels in Nigeria are extremely high (21.1% and 4.1%) respectively (HNLSS, 2009; NDRDMP, 2007; NBS/CWIQ, 2006), with external debt at US$35 billion (Omeje, 2006; Evuleocha, 2005). However, there have been recent economic reform policies in Nigeria to improve the transparency and economic performance, such as the implementation of the Extractive Industries Transparency Initiative (EITI), which is a part of the National Economic Empowerment Development Strategy (NEEDS) promulgated in 2003 (Omeje, 2006).

4.2.3. Politics and Administration

Nigeria since her independence plays a leading role in continental African politics and most importantly in West African countries, by promoting regional economic cooperation in Africa. The politics in Nigeria has been characterised by military dictatorships with several coups, until reverting to civilian democracy in 1999. The present political administration in Nigeria is similar to that of the British (Omeje, 2006) but with a more authoritarianism philosophy. Recent democratic governments in Nigeria have moved towards remediating the damage and catastrophic situations that previously existed. The present democratic government comprises three arms: the executive; the legislative; and the judiciary; which act as checks on each other. In the principle of separation of powers, it provides for a separate election of the President and National Assembly members, and this structure is replicated at all the state and local government levels in Nigeria (NDRDMP, 2007).

4.3. THE NIGER DELTA BACKGROUND

4.3.1. Socio-Demographic Background

The Niger Delta region of Nigeria is the third largest wetland in the world and the largest in Africa (NDRDMP, 2007; World Bank, 1995; Moffat and Linden, 1995). The area is found in the southern region of Nigeria with a massive wetland of about 112,110 km^2, approximately 12.5% of the total land mass of Nigeria (NDRDMP, 2007). The area is dominated by the abundance of crude oil reserves, currently making the area popular and famous in terms of natural resources in the country and in the world at large (NDRDMP, 2007; Omeje, 2006; Evuleocha, 2005; SPDC, 2002).

Table 4.2. Niger Delta Land Areas, Population (2006) and Projected Population for 2015

States	***Land Areas (Km^2)***	***Population Based on 2006 Census (in Million)***	***Population Projected to 2015 (in Million)***	***Capital***
Abia	4, 877	2, 833, 999	4, 383, 000	Umuahia
Akwa Ibom	6, 806	3, 920, 208	4, 537, 000	Uyo
Bayelsa	11, 007	1, 703, 358	2, 320, 000	Yenagoa
Cross Rivers	21, 930	2, 888, 966	3, 712, 000	Calabar
Delta	17, 163	4, 098, 391	4, 877, 000	Asaba
Edo	19, 698	3, 218, 332	4, 096, 000	Benin
Imo	5, 165	3, 934, 899	4, 535, 000	Owarri
Ondo	15, 086	3, 441, 024	4, 105, 000	Akure
Rivers	10, 378	5, 182, 400	6, 592, 000	Port Harcourt
Total	***112, 110 Km^2***	***31, 224, 577***	***39, 157, 000***	

Source: The Niger Delta Region GTZ Population Projection based on 1991 census for 2015 (NDRDMP, 2010) and NNPC (2006)

The population statistics of the region is shown in Table 4.2 presenting both the 2006 and the projected 2015 populations for each state. The Niger Delta area has a total population of more than thirty-one million people (based on 2006 census (NNPC, 2006), but when projected to 2015, the region would have over thirty-nine million people, representing approximately 24% of the total Nigerian population (NDRDMP, 2007; NNPC, 2006).

Rivers and Delta states dominate the region with estimated populations of 5.2 and 4.1 million people respectively based on the 2006 census. The projected populations for the region used an annual growth rate between 2.0% and 2.9%, and reveals that the Niger Delta regions total population by 2015 will be nearly forty million people (NDRDMP, 2007). However, within these populations, there is a significant level of young people with over 62% being below the age of 30 years, while adults in the age group 30-69 years make up only 36% and those aged 70 years and above constitute only 2% of the population (NDRDMP, 2007). Generally, the Niger Delta region population composition is male 54% and female 46%, with 93% of the heads of families being males and only 7% of the females being heads of family. There are typically more than six persons per household (NDRDMP, 2007).

The average population density in the Niger Delta region is currently 265 people/km^2 compared to the national average of 255 people/ km^2. The undesirable consequences of high

population density reflects in the overcrowding of the region, and especially, in the social (public) housing estates poor conditions and deficits (Ihuah and Eaton, 2013; Ebie, 2012; NDRDMP, 2007).

Furthermore, the socio-demographic composition in the region is a varied one with more than 40 ethnic groups and 26 language groups within the politically defined nine states. These states includes: Abia; Akwa-Ibom; Bayelsa; Cross-Rivers; Delta; Edo; Imo; Ondo; and Rivers (NDRDMP, 2007; Omeji, 2006).

Geographically, and as supported by Ebie (2012), the Niger Delta should be the core states in the South-South region as shown in Table 4.1 comprising the six states along the coastline of Nigeria. These includes: Akwa-Ibom; Bayelsa; Cross-Rivers; Delta; Edo; and Rivers.

The other three states (Abia; Imo; and Ondo) are "politically" considered to be located in the Niger Delta region. The major reason was because crude oil exploration and exploitation activities are also carried out in these states, and as such may be prone to major catastrophes like the Rivers, Akwa Ibom, Bayelsa etc. when they occur. However, the contribution of these states in terms of crude oil production and supply to the national account is very minimal compared to what the other six states contribute daily and annually.

The Niger Delta region environment is characterised by different ecological zones such as: sandy coastal ridge barriers; brackish/saline mangroves; freshwater swamp forest; and low land forest (NDRDMP, 2007). Half of this Niger Delta region being fragile mangroves and fresh water forest (NDRDMP, 2007). The Niger Delta is one of the highest floodplains in Africa and Nigeria with many tributaries that drain into the River Niger and then move downwards to empty into the Atlantic Ocean along the Gulf of Guinea. The Niger Delta region is dominated by: high rainfall; poorly drained soil; flooding; and erosion; with 80% of the area flooded annually (NDRDMP, 2007; World Bank, 1995; Moffat and Linden, 1995).

Figure 4.2 Map of the Niger Delta (The Niger Delta Home Page, 2013)

It is an area rich in biodiversity which received several critical inundations of crude oil spills as a result of exploration and exploitation (NDRDMP, 2007; UNDP, 2006, Evuleocha, 2005, Alagoa and Tamuno, 1989).

The Niger Delta area is also associated with high air temperatures as a result of the combination of greenhouse gases flared (at 13,000-14,000 degrees Celsius) and pumped into the environment whilst the effects of acid rain makes communities living and housing conditions a depressive one (NDRDMP, 2007; Omeje, 2006; Evuleocha, 2005; World Bank, 1995; Moffat and Linden, 1995).

4.3.2. Economy

The Niger Delta region produces more than 80 percent of total Nigerian crude oil which accounts for over 80% percent of the Federal Government revenue (CPED, 2009; NDRDMP, 2007; Ebie, 2012; NNPC, 2006; CBN, 2001; World Bank, 1995). But, virtually all of the communities in the Niger Delta region are typically rural with scattered settlements and poor housing conditions (NDRDMP, 2007; SPDC, 2002).

Unemployment levels in the Niger Delta have remained at 30 per cent and about 80 percent of the total area lacks: safe water; infrastructural facilities; education; hospital; and health care services (NDRDMP, 2007; Omeji, 2006; Evuleocha, 2005; Human Right Watch, 1999). Fishing and peasant farming are the main occupations in this region with more than 45%

engaged in these sectors while 17% are engaged in trading and selling activities. Other employment activities in the Niger Delta are: education 9%; health 7%; services 10%; administrations 5%; transportation 2%; construction 3%; and others 11% (NDR Baseline Survey, 2004 cited in NDRDMP, 2007).

The Niger Delta is generally poor and the poverty level is high. Evuleocha, (2005) and HRW (1995 and 1999) studies indicates that GNP per capita in the area is below the national average of US$260.

4.3.3. Politics and Administration

The Niger Delta States, similar to the other States in Nigeria, has the same administration affairs and structures vested in the elected Governor of the states, and other appointed and constituted State Executive Council members (NDRDMP, 2007). Each of the nine states has a unicameral legislature that works together to determine the laws of the State. At the same time, each state has the judiciary arm comprising of Customary and Magistrate Courts, High Courts and Courts of Appeal from which appeals go to the Federal Court of Appeal.

In each state, there is the Local Government tier with structures similar to that of the state. However, the only aspect of the administrative structure which is of prominence to the Niger Delta region and to the inter-governmental relationship is in the national resource distribution. Under Section 16 of the 1999 constitution, all revenues of the Federation are to be paid into the Federation Account. The federal account derivation formula principles are used to share the funds in the Federation Account vertically amongst the tiers of government and horizontally amongst the states, local governments and other functionaries (NDRDMP, 2007). This is based loosely on: parity of states; internal revenue generation; landmass; terrain; population density; and ecological damage. Even where there is agitation for a change to the 13% derivation, no positive outcome has occurred, and the Federal Government is allocated 48.5%, States 24%, Local Governments 20% and Special funds 7.5 % (NDRDMP, 2007). This is despite over 80% of these revenues being derived from the natural endowment of the Niger Delta region/states.

Specifically, in the context of this work, the Niger Delta region people lack access to good quality and quantity of social (public) and other forms of housing estates (NDRDMP, 2007). The number of housing estate units, the size of these units, the quality and quantity, and especially the deplorable conditions of the housing estates units are inextricably limited to the

living standards and enjoyment by the people. It also indicates how economically, socially and environmentally deprived the region is. The housing estates units' provision and post-construction management cannot be overlooked in the built environment of the Niger Delta. The prevalent and continual housing estates units' deplorable conditions and the inadequate supply in the Niger Delta region need crucial and urgent answers.

The NDRDMP (2007) report and Ebie (2012) studies revealed that the Niger Delta urban houses are, in general: overcrowded; lacking in most elementary amenities; of poor condition; and surrounded by a deplorable urban landscape situation. These undesirable conditions are predicted to be associated to a lack of appropriate management and maintenance culture practiced during and after the delivery into the built environment of the Niger Delta.

Rivers State (Port Harcourt), for example, with approximately 30% of the population, accounts for more than 350,000 people living in shanty areas (NDRDMP, 2007). Approximately 32% of the housing estates units provided in the Niger Delta region are without basic amenities (NDRDMP, 2007).

Even the unsustainable quality and inadequacies of the building materials availability in the region make housing access and ownership by the people difficult, as well as creating an unsustainable housing estates provision. The projected current housing estates units' deficit in the Niger Delta region states is presently at 607,345 new dwelling units. This indicates that there would be a future annual requirement of 324,600 new housing estates units (NDRDMP, 2007).

The inappropriate post-construction management currently used in the housing estates management is reflected by the poor quality, incessant and prevalent deplorable housing estates units' conditions in the region. The construction of new housing estates units without a best practice approach to sustainably post-construction manage and sustain the existing housing estates units is contrary to sustainability objectives of sustainable shelter for all (UNSD, 1992).

Consequently, finding a way to bridge the undesirable situational gap should be advocated by the relevant concerned stakeholders before proposing new housing estates units' provision in the Niger Delta region.

A supposed benefit to the people of the Niger Delta region is to be accessing: ample; good quality; sustainable social (public) housing estates units; and other social service at all times. It is clear that the Niger Delta region contributes more than 80% of the internal and foreign earnings (NDRDMP, 2007; Omeji, 2006; Ebie, 2012: Evuleocha, 2005). No other regions of Nigeria can attain this, yet the indispensable basic needs of the people of the Niger Delta region especially good quality and quantity housing estates units is demonstrably lacking. The prevalent attitude of allowing this region and the people to be homeless, abandoning housing estates projects and not managing the existing ones by the Federal government and State government through their established housing authorities is very surprising and unwarranted. Countenancing the region to be socially, economically and environmentally deteriorating further is a worse scenario that should not be dominating the Niger Delta region, and ought not to be experienced by the people. The people of the Niger Delta are poorer than the average for Nigeria to the extent that a greater percentage of the people of the region cannot afford or access appropriate and sustainable housing estates units for their comfortable and enjoyable living as advocated by the United Nations (UNSD, 1992) for human rights and shelter for all.

Therefore, investigating the social (public) housing estates units in terms of the quality, and even the quantity (though limitedly emphasised) is not out of place in this study. The justification of why the Niger Delta region is used as the scope and focus of the research is undoubtable.

Furthermore, based upon the aforementioned facts about the housing estates units' situation in the Niger Delta region, the research considered it appropriate to examine the responsibilities and functions of the institutions obligated to develop and manage the social (public) housing estates units. This becomes the study investigation in the next subject headings.

4.4. FEDERAL AND STATE HOUSING AUTHORITY - RESPONSIBILITIES AND FUNCTIONS

4.4.1. Background Information

The ultimate purpose of social (public) housing estates provision and post-construction management is to reduce the housing deficits, as well as to improve the quality of the housing estates conditions to the citizens. Hence, official structures are required to be established to achieve this purpose. It is also within these structures that the housing policy implementation

and sustainability would greatly influence either the success or failure of housing estates units' delivery and post-construction management (FMLHUD, 2012; 2006; Kabir and Bustani, 2009). The various responsibilities and functions should begin at the preliminary stage of policy development, and continue through to implementation, coordination, monitoring, evaluation and review and to the post-development management stages for their sustainability (FMLHUD, 2012). This is underscored by the greatest, but avoidable, problems of the instability and capacity gaps caused and created due to the merging and de-merging of responsibilities amongst the various institutions. Even where the institutions are well established, effective social (public) housing estates units delivery and post-construction management needs to be stabilized, empowered and strengthened in order to effectively discharge their respective functions. This is especially so where sustainability in social (public) housing estates units and benefits is to be sought.

Several institutions were created to foster social (public) housing estates units and their benefits provision and post-construction management. These include: Federal Ministry of Lands, Housing and Urban Development (FMLHUD); Federal Capital Territory Administration (FCTA); Federal Housing Authority (FHA); Federal Mortgage Bank of Nigeria (FMBN); Central Bank of Nigeria (CBN); Securities and Exchange Commission (SEC); Standards Organization of Nigeria (SON); Nigeria Building and Road Research Institute (NBRRI); Professional Regulatory Bodies in the Built Environment (PRBBE); and Federal Government Staff Housing Loans Board (FGSHLB). These are all established at the Federal Government level (NNHP, 2012). Others include: State Governments through their own State Housing Authority (SHA); Local Governments; Communities; Private Sector; and Multilateral Agencies (FMLHUD, 2012).

However, because of the study aim and objectives, the discussion of the roles and functions of these institutions is limited to the Federal Housing Authority and the State Housing Authority since they represent the major institutions responsible for the development and post-construction management of social (public) housing estates units and the expected sustainability benefits in Nigeria. This is revealed in the national housing policy documents (FMLHUD, 2012). Some of these other institutions were observed to serve mainly as regulatory institutions, while others provide support services to the FHA and SHA for effectiveness in their responsibilities to social (public) housing provision and post-construction management sustainability (FMLHUD, 2012).

4.4.2. The Federal Housing Authority (FHA) - Responsibilities and Functions

The Federal Housing Authority (FHA) was established by the Federal Government of Nigeria under decree No. 40 of 1973, and has been amended to be CAP. 136, LFN of 1990; however, it began its actual operations in 1976 with the following responsibilities and functions:

- Develop and manage real estate on a commercial basis in all States of the Federation and the Federal Capital Territory (FCT);
- Provide sites and services for all income groups with a special emphasis on the No-income and Low-income groups;
- Provide No-income and Low-income, cooperative, rental and rural housing in all States of the Federation and the Capital Territory from funds provided by the Government and other sources;
- Execute such housing programmes in the public interest as may be approved by the Federal Government;
- Mobilize off-shore funding for housing development;
- Acquire, hold and manage movable or immovable property;
- Acquire, construct and maintain dwelling houses, schools, communal and commercial buildings, and other structures;
- Enter into contracts for the construction, maintenance, management or repairs of any property;
- Purchase or otherwise acquire any assets, business or other property where, in the opinion of the Authority, such purchase or acquisition is necessary for the proper discharge of its functions under this Act;
- Sell, let, lease or otherwise dispose of any property vested in the Authority;
- Undertake or sponsor the undertaking of such research as may be necessary for the performance of its functions;
- Train managerial, technical and other staff for the purpose of running the Authority's operations (FMLHUD, 2012).

4.4.3. The State Housing Authority - Rivers State Housing and Property Development Authority (RSH&PDA)

The RSH&PDA is used in this theme as an example of a state housing authority to demonstrate their responsibility and functions in social (public) housing estates units' development and post-construction management. The selection is purely: purposive; convenience; and the most easily accessible document by the researcher to the effect. Further,

the documentary review in this case reveals that every one of the thirty-six (36) states and the FCT in Nigeria has their own established housing authority with functions and responsibilities identical to that of the RSH&PDA. Presenting and discussing each state housing authority individually is irrational in this circumstance. Hence, the adoption of the RSH&PDA as a representative of the nine (9) states housing authorities in the Niger Delta and that of the remaining twenty-six (26) states and including the FCT in Nigeria. The review, therefore, indicates that there are at least thirty-seven state housing authorities in Nigeria with the same or similar jurisdiction, responsibilities and functions in social (public) housing estates units' development and post-construction management. These are further confirmed by the statement:

> *"…Pursuant to the federal government objective of ensuring that every citizen has ample access to housing and to reduce the total deficits in housing estates units' and the poor condition of the existing stock in Nigeria; every state government in the federation was charged with the obligation to formulate its own housing policy and programmes within the overall purpose of the Nigerian National Housing Policy…"*
>
> (FMLHUD, 2012, p. 84)

These obligations prominently entail establishing appropriate agencies such as State Housing Corporations/Authorities to execute, develop and manage the housing programmes. It further permitted the state government to facilitate housing delivery and their management, by undertaking the following suggested measures of: promoting and facilitating the development of site and services schemes; playing an active role in the identification, production and use of building materials from local resources in order to ensure availability of inexpensive building materials for housing development; carrying out re-development and upgrading of existing blighted residential areas either alone or in collaboration with Federal, International bodies and the private sector; strengthening institutions for housing delivery at the state level; strengthening and encouraging housing co-operatives, or housing associations, thrifts and credit societies in housing development; promoting the formation of more Primary Mortgage Institutions and Building Societies (PMIBS) in collaboration with the private sector; promoting intergovernmental synergies, linkages and peer review in housing delivery; strengthening existing Planning Authorities (PA); establishing the same in all local government areas where there are none; undertaking social housing schemes and projects, and encouraging all local governments to do so; establishing, maintaining and resuscitating

existing skill acquisition centres; and providing access to land for housing delivery (FMLHUD, 2012).

Furthermore, the state governments were empowered to: formulate, monitor and evaluate Government policies on housing; co-ordinate the activities of other agencies of Government in the area of housing; provide and maintain infrastructure for the housing stock of State Ministries; upgrade and maintain the housing stock of the State Ministries; develop a data bank for housing needs and co-operate by forwarding the same to the National Data Bank (NDB) for purposes of coordination; encourage the adoption of the National Building Code and for effective housing delivery and safety in collaboration with relevant professional bodies; review all existing legislation, regulations and ordinances in the housing sector with a view to achieving the goal of adequate housing for all; supporting and encouraging indigenous construction companies, building materials producers and manufacturers, to participate actively in the provision of housing; develop and sustain the determination and political will to succeed in the provision of houses for its people; and actively encourage capacity building and its sustainability for personnel who provide services in the built environment (FMLHUD, 2012).

Consequent to the above jurisdictions given to the state governments and as further accentuated by the provisions of the Land Use Act, 2004 (formally Decree No.6, 1978), every established state and its created authority (Housing Authority) was charged with the responsibility of working out the details for the implementation of approved policies and programmes relating to: the management of such Government houses, estates and other property as may be vested in the Authority by the State Government; increasing the availability in the State of dwelling-houses, offices and industrial buildings for acquisition by or letting to members of the public (FMLHUD, 2012).

Therefore, the present study, in its pursuance to addressing the aim and objectives and to properly answer the research questions as earlier stated, used an example of a state established housing authority to buttress the responsibilities and functions of the SHA. This was to confirm that the state housing authorities were the only institutions charged with the obligation to develop and post-construction manage social (public) housing estate units for the state governments in Nigeria. This is comparable to the Federal Housing Authority charged with the mandate of the management of the Federal Government housing estates units.

4.4.4. Responsibilities and Functions

The Rivers State Housing and Property Development Authority (RSH&PDA) was established by the Rivers State Government of Nigeria under Edict No.14 of the Rivers State Government, 1985, and now, *"Housing and Property Development Authority Law, CAP 67, Laws of Rivers State, 2001"* (Official Gazette of RSG, 2001). This SHA *w*ithout prejudice to the other generality of functions and responsibilities perform the following functions and responsibilities of:

- Undertaking the development, construction and management of housing estates and industrial estates;
- Constructing and maintaining dwelling-houses, offices, industrial buildings and such other buildings as are necessary, or desirable, for the performance of its functions under this Edict;
- Providing and maintaining access roads, footways, bridges, drains, sewers and water-courses for or in connection with housing estates, industrial estates or other buildings owned, constructed or managed by the Authority;
- Acquiring, constructing, maintaining or repairing any works, plant or apparatus necessary, or desirable, for the provision of electrical, water or sanitary services for or in connection with any housing estates, industrial estates or other buildings owned, constructed or managed by the Authority;
- Selling, letting or otherwise disposing of any land or building vested in the Authority to any person, body or persons or institution upon such terms as the Board thinks fit (including conditions as to payment of the consideration upon deferred terms);
- To enter into agreement with any person or body of persons for: the supply, construction, manufacture, maintenance or repair by that person or body of persons of any property, movable or immovable, that is necessary or appropriate for the purposes of the Authority; and the provision by that person or body of persons of such services as the Authority may require for the performance of its functions under this Edict;
- Entering into agreements with any person or body of persons for the management by that person or body of persons of any housing estates or industrial estates owned by the Authority;
- Entering into and carrying out agreements with any person for the planning, development, construction, maintenance or supervision by the Authority of housing estates, industrial estates, dwelling-houses or other buildings;

- Prohibiting, controlling and regulating the presence of any person, vehicle, animal or thing on any premises owned, occupied or managed by the Authority;
- Promoting the establishment or expansion or entering into agreements with any person or body of persons for the promotion of the establishment or expansion of companies or other bodies which have any or all of the powers conferred upon the Authority under this Edict;
- Carrying on activities for the purposes of effecting the functions of the Authority, either under the total or partial control of the Authority or independently of the Authority;
- Planning, developing, maintaining and promoting beauty spots including parks and gardens in its estates or other property; to control the environment within its sphere of operation generally;
- Conducting research into estate management and the building industry; and perform such other functions as the State Government may assign to it, not being functions that are inconsistent with this Edict or any other law for the time being in force or as are incidental or conducive to the exercise by the Authority of all or any of its fore-going functions;
- Insuring with a reputable firm of insurance any or all of its property against all forms of risks, as well as fostering the development of the urban areas in the State by the provision of public services and other public amenities.

(RSG, Cap 67, Law of Rivers State, 2001)

The findings, in the context of the research, after triangulating the sources for the FHA and SHA, and their responsibilities and functions, reveals that both housing authorities have the same obligations. This is to ensure ample, accessible and sustainable housing estates units' development and management for the federal and state governments to the citizenry. These findings further indicate that both the housing authorities share the same responsibilities and functions definitions. However, capacity development such as training was feebly limited in the state housing authority especially in the case of RSH&PDA used in this research. It may be an exception when compared to the other nine (9) states of the Niger Delta and the remaining twenty-six states of the federation (Nigeria) and the FCT documents.

Above all, these findings confirm in the research circumstance that both the FHA and SHA are the only recognised housing authorities to cater for the development and post-construction

management of social (public) housing estates units and benefits sustainability in the Niger Delta region of Nigeria.

4.5. EMPIRICAL DEMOGRAPHY OF THE CASE STUDY RESPONDENTS

The previous analysis of the themes of the: FHA; SHA; and their responsibilities and functions; in the research context, has confirmed that both housing authorities are representative of the others in Nigeria. They are also the main bodies charged with the development and post-construction management of social (public) housing estates units and the benefits sustainability in the Niger Delta region of Nigeria. Furthermore, the respondents to the research study were drawn from the staff of both of these public housing authorities, together with other relevant professionals and stakeholders to the social (public) housing estates units' management. The research considered it appropriate and as a requisite to investigate these respondents in the research context. Therefore, the purpose of this theme, in the study context, seeks to determine the demographic information about participants/respondents. This is in such areas as their: gender; age group; years of experience; place of work/service; and involvement/participation; in the post-construction management of social (public) housing estates of both or either of the Federal or State Government. These enable a clear picture of the respondents' relevance to the study and support that the participants/respondents and the information (data) they provided for the study were: reliable; coherent; representative; credible; and consistent. Hence, it establishes that the data was warranted for use for the analysis and results in chapters five, six, and seven of the present research. Confirmation of these points permitted the merger of all respondents in the qualitative and quantitative data collection instruments *(16 (Nr) + 100 (Nr) = 116 (Nr))*, and this was used in the subsequent analysis in this chapter.

4.5.1. Gender of Respondents

This seeks to demonstrate the gender ratio of the respondents to the study investigation questions both in the qualitative and quantitative instruments of data collection. The present study is not gender sensitive since utilising appropriate post-construction management tools is not reliant on gender, but, it was used to demonstrate that there was a balanced distribution in the sample when compared to the total population of the study.

The overall results in Table 4.2 reveal that the gender of the participants was 69% (80 Nr) male and 31% (36 Nr) female out of a total of 116 (Nr) (both semi-structured interview and questionnaires) respondents. However, when excluding the residents/tenants and the external estate community representatives from the total 116 respondents (since they may be presumed

to be outside the normal social (public) housing estates post-construction management professions), the findings indicated in Figure 4.3 and Table 4.2 reveal that of the total of 94 respondents (Professionals/Contractors; SHA Management Staff; and FHA Management Staff), 71% were male and 29% were female respectively. This is also supported by the national statistic figure on work force in the relevant sector (building and construction), which reveals 2.15% for males and 0.21% for females (NBS, 2010) employed.

These findings confirm that there is a balanced distribution within the sample for gender, and that it may be used to represent the comparative composition of the total population of males and females employed in the Federal and State Housing Authorities social (public) housing estate management team.

Table 4.3. Respondents Gender for Entire Study and Professional Practice Respondents

Respondents	***Sex***		***Total Study Respondents***	***Total Professional Practice Respondents***
	Male	**Female**		
External Estate Community Representatives	3	2	5	-
Tenants/Residents	10	7	17	-
Professionals/Contractors	17	6	23	23
State Housing Authority Staff	19	12	31	31
Federal Housing Authority Staff	31	9	40	40
Total	***80***	***36***	***116***	***94***

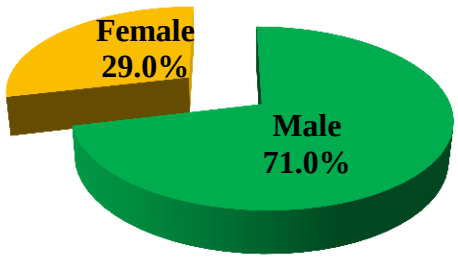

Figure 4.3. Gender for Professional Practice Respondents only

4.5.2 Age Group of the Study Respondents

This seeks to establish the age bracket of the respondents that participated in the study, and to confirm whether the majority of these respondents are within the productive age groups (economically active groups) of the Nigerian economy as a whole. The total data used in this particular question analysis is limited to 100 (only questionnaires responses) because at the face- to - face semi-structured interview process, the question of the age of the interviewee was considered too personal and may have not respected dignity and privacy to an interviewee. It was considered to be culturally insensitive and it may also have prompted the interviewee to become upset and to provide answers that may not have benefited the study questions, objectives and aim.

The results of the quantitative analysis indicated in Figure 4.5 show that 32% (32 Nr) were within the age group 31 to 40 years, while another 32% (32 Nr) were within the age group 41 to 50 years and 19% (19 Nr) were within the age group 21 to 30 years. Whereas 15% (15 Nr) are within the age group 51 to 65 years and only 2% (2 Nr) are within the age group 66yrs and over. These data reveal that of the respondents sampled, not less than 98% where economically active (productive) age groups in the Nigeria economy and which was specified as from 15 to 65 years of age. The 0 - 14 years and 65 years and above are in the dependency age group (NBS, 2010). However, this study observed and considered 15 – 20 years of age to be in the dependence age group since these age brackets are presumed to be in school or training in the Niger Delta region and Nigeria specific context. Hence, the study proposed that the age categories of these respondents should be considered: reliable; credible; consistent; and coherent; within the study context and could be used in further analysis.

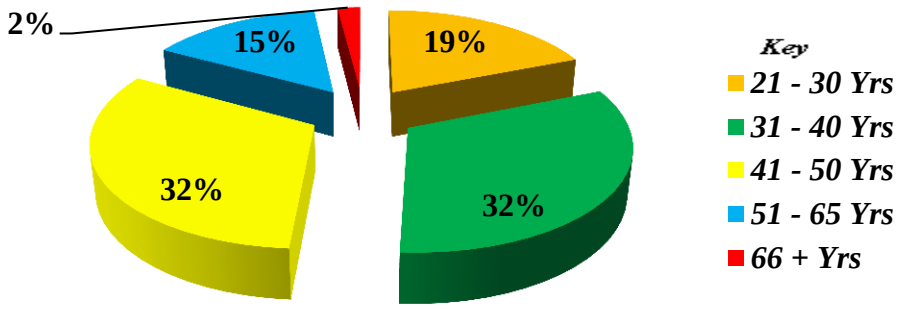

Figure 4.4. Age Group of the Respondents

4.5.3. Respondents Experience

Regarding this question, the study must demonstrate that the experience of the respondents in the research is specific and justifies that the respondents have significant experience in the management of social (public) housing estates units. Eight (50%) of the total sixteen (16 Nr) interviewees stated that they and their organisation had been providing the social (public) housing estates units post-construction management services for the past twenty-five years. Four (25%) stated that they had been providing these services for more than ten years but less than twenty-five years. For instance, one of the state social (public) housing estates management team acknowledged that:

> *"… to the best of my knowledge, the Rivers State Housing and Property Development Authority have been in the business of developing and managing housing estates units for the state government for the past thirty (30) years…, and … for me I have been in the management practice for the past 20 years…"* (Transcribed Interviews, 2013)

However, the other four (25%) of the interviewees acknowledged that they have not been directly involved in the services delivery since their management authority do not consider them as relevant to their service efforts.

The quantitative results shown in Figure 4.6 indicate that 35% (35 Nr) of the respondents had within 11 to 20 years of experience, while 32% (32 Nr) had within 1 to 10 years of experience and 19% (19 Nr) had within the 21 to 30 years of experience. Whereas 12% (12 Nr) of the respondents had the experience level less than 1 year and only 2% (2 Nr) had above 31 years of experience. These findings reveal that at least 88% of the respondents had at least 1 years' experience in the post-construction management of the social (public) housing estates units compared to 12% having no or limited experience. This later percentage is that from the external estate community representatives and tenants/residents as indicated by the face-to-face semi-structured interview findings above. This is further supported and corroborated by the respondents from professional practice in Table 4.2 where 81% of the respondents are actively engaged in the post-construction management of social (public) housing estates units. These results confirm that the Federal and State Housing Authority employees and other professionals have long been involved in the development and post-construction management of the social (public) housing estates provided in the Niger Delta region. The law establishing these authorities as earlier stated supports, as well as requires this expertise (FMLHUD, 2012; CAP 67 Law of RSG of 2001).

Therefore, these findings in the research context confirm and underscored that the data relating to expertise is sufficient, hence, it is credible, representative, trustworthy, coherent, and reliable for further investigation.

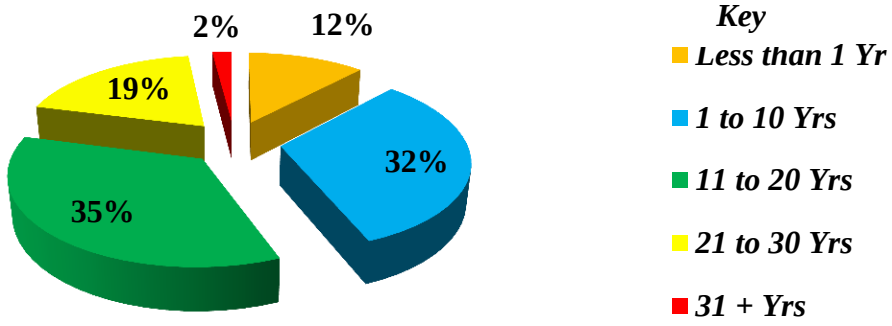

Figure 4.5. Experience Level of Participants in Years in Social (Public) Housing Estate Post-Construction Management

4.5.4. Work/Service Place of the Respondents

This question in the research context seeks to prove the place of work of all the respondents, and which also assists to validate and support that the information they have provided for this study is credible, trustworthy, comprehensive and reliable. It further helped to establish whether a significant percentage of the respondents work or serve in either of the organisations identified and used as the unit of analysis for this study. At the same time, it also demonstrates whether the respondents have a significant awareness, understanding and knowledge of the issues being investigated by the study. The results in Figure 4.6 indicate that out of the 116 respondents involved in the semi-structured interview or questionnaire, 34% (40 Nr) work at the Federal Housing Authority, while 27% (31 Nr) of the respondents work at the State Housing Authority and 20% (23 Nr) of the respondents work as professionals/contractors in housing estates management. 15% (17 Nr) of the respondents do not have relevant work rather to be considered as resident/tenant and 4% (5 Nr) of the respondents are designated representatives of the external housing estates community. These findings reveal that at least 81% of the respondents' work either at the Federal Housing Authority or State Housing Authority or as professionals/contractors, compared to 19% that do not work in the relevant organisations. These findings supports in the research context that the data provided is reliable, illustrative, relevant and cogent. A significant percentage of the study participants claim to be professionals knowledgeable about the issues of the investigation. Particularly, 81% which is a significant percentage, as confirmed to work in institutions or organisations that have their interest and mission focused in efforts to ensure

effective social (public) housing estates units' post-construction management in the Niger Delta region of Nigeria.

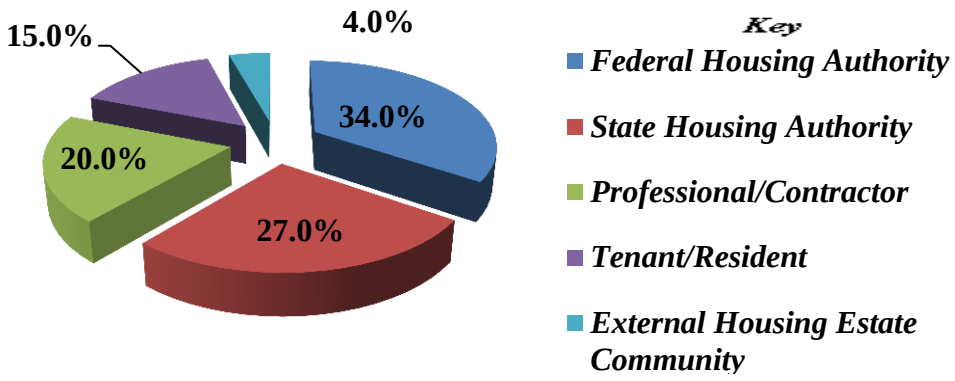

Figure 4.6. Participants/Respondents Place of Work/Service

4.5.5. Respondents Involvement/Participation

This question in the demographic information theme seeks to investigate whether the respondents were at their work place meaningfully involved in the post-construction management activities of the social (public) housing estates units. The results of the total 116 (Nr) respondents indicated in Figure 4.7 reveal that 40% (46 Nr) rated their involvement as being a high participation, while 27% (31 Nr) rated their involvement as being a significant participation and 13% (15 Nr) rated their involvement as being only limited participation. 11% (13 Nr) rated their involvement as being of negligible participation and only 9% (11 Nr) rated their involvement as having no direct participation. These findings reveal that at least 67.0% of the respondents had high or significant participation in the activities of social (public) housing estates post-construction management as against 33.0% of limited or negligible (or no direct) participation. These findings, particularly, in the theme confirm in the research context that a substantial percentage of the respondents are meaningfully participating in the effort to post-construction manage the social (public) housing estates units. This infers that the information the respective respondents have provided in this study has specific data richness. Hence, the: reliability; credibility; representativeness; coherency; and consistency; of the data and the findings of the research therein is deemed justified.

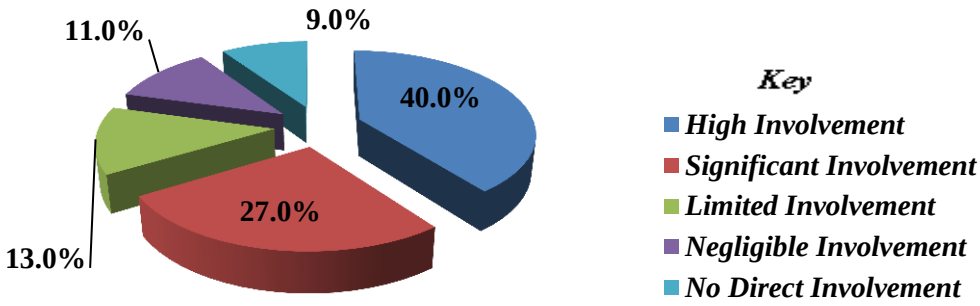

Figure 4.7. Respondents Participants in Social (Public) Housing Estates Post-Construction Management Practice

4.6. SUMMARY OF CHAPTER

The chapter focused the research context and encompassed its social, cultural, legal, economic, environmental, political, and technology characteristics, supporting the reasons for the study investigation on social (public) housing estates post-construction management practice and sustainability in the Niger Delta area. It also underlined information about the Federal and State Housing Authorities with their respective responsibilities and functions, and emphasised that they are the only institutions charged with the responsibilities and functions of managing the federal and state owned social (public) housing estates units for sustainability after delivery. The chapter further highlighted, through empirical analysis, the respondents' representativeness to this research and proved that the respondents and the information they provided was significantly rich and could be relied upon, was cogent and comprehensive in this research circumstance.

This is particularly so were the findings confirm that significant percentages of the respondents had actively participated in activities to ensure social (public) housing estates post-construction management and sustainability. At the same time, the chapter underscored that a significant percentage of the respondents were in the economically active groups (21 – 65 years) of the Nigerian economy, and have meaningful professional experience in the research context and themes. Hence, the data provided warranted further analysis in the research, to ensure sustainability in social (public) housing estates units' post-construction management and their benefits in the Niger Delta region of Nigeria.

The next chapter focuses on social (public) housing estates management and maintenance practice in the Niger Delta region of Nigeria and the best approach (research objective 1 and 2).

CHAPTER 5: SOCIAL HOUSING ESTATES MANAGEMENT AND MAINTENANCE PRACTICE IN THE NIGER DELTA OF NIGERIA (RESEARCH OBJECTIVES 1 AND 2)

5.1. INTRODUCTION

This section presents the analysed results and discussions on the pragmatic interpretative case study conducted in order to identify the estate management principles and approaches used in the management of social (public) housing estates of the Federal and State Government, built and managed in the Niger Delta region of Nigeria. It further investigates the maintenance management approaches in the social (public) housing estates. This addresses the first and second research objective which is the first two steps in the development of a framework for the sustainable management of the social (public) housing estates in the Niger Delta of Nigeria. As such, it only analysed and shows the results of the data generated from the fieldwork particularly for those of estate management methods and maintenance management practices currently adopted in the housing estates as well as providing triangulation for later discussion of the results utilising cross referencing to the evidence based on the reviewed body of knowledge in this subject. The analysed data were collected using semi-structured interviews, a questionnaire survey, archival documents and direct observational approaches. The findings will assist in the subsequent development of the framework that could be used in the management of the social (public) housing estates in a sustainable manner. Therefore, the main sub-objectives of this section are:

- To ascertain the current social (public) housing estates condition and/or situation;
- To assess the management approaches and identify which was currently used in managing the social (public) housing estates;
- To assess the maintenance management options and reveal which option or options was currently in use in the management of the housing estates;
- To identify and assess the estate management and maintenance barriers facing the Federal and State Housing Authorities management teams;
- To assess whether the current condition of the social (public) housing estates is credited to the management style, maintenance approach and the barriers in the post-construction management.

The analysis of the data generated from the four sources of evidence (semi-structured interview, questionnaire survey, archival documentation and direct observation) in this section

adopted the NviVo 10 software packages utilising: coding; thematic framework; relationship nodes; and matrix analysis; for the analysis of the qualitative generated transcribed data. The Statistical Package for the Social Science (SPSS version 20.0) was used for its descriptive statistical tools such as: frequencies; percentages; cross tabulations; graphs; and the 2-tailed Pairwise analysis of variance; for an in-depth insight into the quantitative generated data. For the documentation and observation sources of evidence, iterative pattern coding and content analysis tools were used including the semi-structured interview sources. Finally, the table below provides the main sub-objectives of the section and the questions asked to investigate and answer the objectives in both field instruments.

Table 5.1 Research Objectives and Investigating Questions in Each Instruments

Research Objectives		***Interview Questions***	***Questionnaire Questions***
1	Identify the estate management principles and approaches used in the management of social (public) housing estates;	AQ2; AQ3; BXQ1; BXQ2 and ;BXQ3;	QB6; QB8; QB9; QB11; and QB12;
2	Identify the social (public) housing estates maintenance management types and practices in the total housing estate management		QB8; QB10; QB13; and QB14

5.2 ANALYSIS, RESULTS AND DISCUSSION BASED ON TRIANGULATION

According to Davis (2013) and Pallant (2013, 2007), it is important to check the reliability of the scale used for data collection and measurement to see if all the items contained in the instruments and within the scale are consistent. Checking whether they are all measuring the same underlying construct was also an important process in the research study. This, DeVellis (2003) opined, should be above 0.7 values. Table 4.2 shows the reliability analysis for the questions in this section.

Table 5.2. Test of Data Reliability

Cronbach's Alpha	Number of Items
0.813	29

Table 5.2 shows the data reliability analysed for the scale used in measuring all the questions in this section (for further details refer to Appendix C, Section B). According to Pallant (2013, 2007) and DeVillis (2003), a value above 0.7 was acceptable, but, values above 0.8 are preferable. This reveals that the satisfaction with the Likert scale used in data collection in this section has very good internal consistency and reliability with a Cronbach's alpha coefficient of 0.813 for 29 items. In the context of the study and specifically in this section, it reveals that the data generated was considered reliable, consistent and was suitable to be used for further analysis.

Further, a normality analysis test was conducted to ascertain the normality of the generated data. The main purpose of which provides the researcher with an analysis to determine which statistical test was most appropriate to test the variables for relationships and/or significance. This, Pallant (2007) and DeVellis (2003), argued is a necessary procedure in order to define whether to use a parametric test or a non-parametric test measurement. This is also shown in Table 5.3.

Table 5.3. Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Management approaches	.290	100	.000	.849	100	.000
Housing estate owner	.292	100	.000	.683	100	.000
Maintenance types	.228	100	.000	.886	100	.000
Estate conditions	.235	100	.000	.831	100	.000
Estate situations	.423	100	.000	.644	100	.000
Funds lacking	.258	100	.000	.818	100	.000
Maintenance Lacking	.228	100	.000	.854	100	.000
Policies support Lacking	.247	100	.000	.863	100	.000
Need Assessment Lacking	.197	100	.000	.903	100	.000
Improper Project Costing	.217	100	.000	.895	100	.000
Instability Leadership	.234	100	.000	.889	100	.000
Stakeholders Inclusion lacking	.289	100	.000	.806	100	.000
Unwillingness	.232	100	.000	.893	100	.000
Bureaucratic Bottlenecks	.235	100	.000	.899	100	.000
Funding Problem	.295	100	.000	.771	100	.000
Staffing Problem	.247	100	.000	.846	100	.000
Monitoring, Evaluation and Reporting Problem	.302	100	.000	.775	100	.000
Rent Collection Difficulty Problem	.202	100	.000	.896	100	.000
Assets Registry Problem	.232	100	.000	.897	100	.000
Tenant/Resident Conflict Problem	.243	100	.000	.878	100	.000
Improper Project Evaluation	.196	100	.000	.892	100	.000
Maintenance Works Delays	.220	100	.000	.838	100	.000
Insufficient Funds	.235	100	.000	.799	100	.000
Poor Maintenance Work Costing	.255	100	.000	.878	100	.000
Lack of Knowledge Maintenance Staff	.248	100	.000	.862	100	.000
Schedule of Maintenance Work improper	.185	100	.000	.891	100	.000
Weather Changes	.196	100	.000	.905	100	.000
Material increasing Cost	.250	100	.000	.859	100	.000
Maintenance Standard Lacking	.311	100	.000	.700	100	.000

a. Lilliefors Significance Correction

Table 5.3 indicates the test of data normality for all the variables in this section. According to Pallant (2013, 2007), a significance value of more than 0.05 indicates data normality (normally distributed) for Kolmogorov-Smirnov statistic result and a value of 0.000 indicates a violation of the assumption of normality (non- normally distributed). The results in Table 4.3 reveal a Kolmogorov-Smirnov statistic non-significant value of 0.000 for all the 29 number variables, indicating that the data were non-normally distributed. According to Pallant (2013, 2007), Creswell and Plano Clark (2011) and Saunders, *et. al.,* (2009), non-normally

distributed data should be tested with a non-parametric instrument such as Spearman's correlation coefficient; (normally distributed data would be tested with a parametric instrument such as Pearson's correlation coefficient). In this research section, the non-parametric Spearman' correlation coefficient was used to identify the items for further investigation. For interpretation of the test results, the range of figures in Table 5.4 below will be adopted in judging the strengths of the correlations within the whole research analysis (Pallant, 2013; Cohen, 1988). The adoption of Spearman's correlation coefficient in this study was on the premise that the study aimed to develop a framework that would integrate the appropriate estate management method; the maintenance management approach; stakeholder involvements/participations; and sustainability factors together in order to provide sustainability of social housing estates post-construction management. This required investigating the strengths of these concepts/themes associations in the current social housing estates post-construction management practice which will assist in the development of the framework.

Table 5.4. Guide to Judge Strength of Correlation

Range	***Judgment Criteria***
0.00 – 0.29	*Very Weak*
0.30 – 0.39	*Weak*
0.40 – 0.59	*Moderate*
0.60 – 0.79	*Strong*
0.80 – 1.00	*Very Strong*

Source: Pallant, 2007 and 2013

Regarding the research objectives as earlier mentioned, the themes which emerged from the analysed data and their results in line with the research context were as follows:

5.2.1. Social Housing Estates Management Approaches

This question in the research background seeks to ascertain the estate management approaches available in practice that would be used by the Federal and State Housing Authorities in the management of social housing estates. At the same time, it assesses these approaches so as to confirm which approach was being currently used by both authorities in post-construction management of social housing estates. Regarding this subject in the qualitative semi-structured interview results, the interviewees from the Federal and State Housing Authority, the professional/contractor and the tenants/residents (12 Nr) reveals that the estate management approach used for the post-construction management of the social housing estates was the in-house estate management approach. This, they affirmed was the strategy through which the employed staff of the housing authority particularly in the estate

and maintenance department are deployed for specific tasks in the housing estates. These twelve (12 Nr) interviewees further indicated that other approaches do exist of which they are aware and which would equally be used for the management of the housing estates including a partnership approach and an outsourcing approach. But, all the interviewees decried by stating thus:

> *"Their applicability in housing estates management attempts is limited by financial resources and some bureaucratic bottlenecks within the authority and with the authority and the owner of the social (public) housing estates (Government) which at the current state do not support such approach implementation"* (Transcribed Interviews, 2013).

However, six (6 Nr) of the interviewees (four of the professionals/contractors and two of the tenants/residents) specified that if one of these approaches particularly the partnership estate management method was encouraged and allowed to be implemented in the social (public) housing estates management, the housing estates condition now would be enhanced when compared with the in-house estate management approach currently in use. But the interviewees from the Federal and State Housing Authorities were sceptical commenting on supporting the current approach on this occasion and stated:

> *"…do you not think we will lose our job if this approach is suggested, accepted and implemented by the government through the various housing estates management authorities, and as such, we will all continue to adopt this one the government is more aware of and adopts so that our job is securely saved"…*(Transcribed Interviews, 2013).

From this revelation and affirming the interviewees' opinions above, it clearly indicates that the housing estates management approach currently adopted in the management of the social (public) housing estates is the in-house management method as against the other alternative approaches that could be used in the attempt to manage the social housing estates sustainably.

Regarding the analysed quantitative questionnaire data, the results in Figure 5.1 show that the most used management method was the in-house estate management approach 50.0% (50 Nr), while 24.0% (24 Nr) outsourced estate management and 14.0% (14 Nr) said the estate management approach used was unknown. Whereas only 9% (Nr) said a partnership approach and 3.0% (3Nr) preferred not to say what the management approach used was. This also in the research context confirms that 50% of the Federal and State Authority management team and

the professional/contractors have as their current practice an in-house estate management approach in social housing estates post-construction management. While only 33% of both management teams and professionals/contractor in practice use outsourced or partnership approaches.

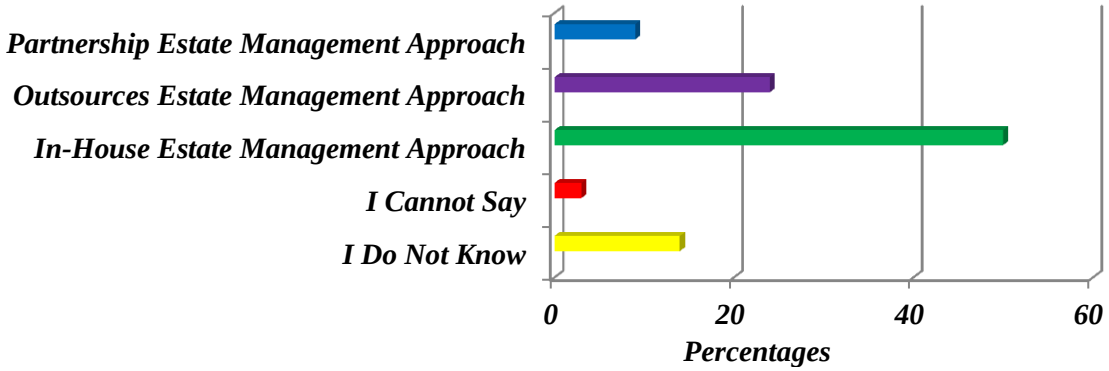

Figure 5.1 Estates Management Approaches/Practice

Concerning this theme again, documents gathered from the Federal Housing Authority (FHA), State Housing Authority (SHA) (for instance, Rivers State Housing and Property Development Authority (RSH&PDA) law (CAP 67 Laws of Rivers State, 2001), and the National Housing Policy (FMLHUD, 2012) clarified that the management approaches or approach used for the management of social (public) housing estates was fragmented and varies amongst the various authorities. The FMLHUD (2012) case depicts that the management approach used in post-construction management of social housing estates was specified as in-house estate management practice for use by the staff of the Federal Housing Authority. Although, the document did not provide to the user of the policy the other alternative approaches but emphasised the partnership method in order to manage the housing estates sustainably. The case of the proclamation establishing the SHA such as the Rivers State Housing and Property Development Authority edict, 1985 (now Housing & Property Development Authority Law, CAP 67, Law of Rivers State, 2001), provides for the post-construction management of the government housing estates. But, whether it would be done through in-house, outsourcing, or a partnership management approach was not revealed, creating the opportunity for only the in-house estates management approach to be adopted. This aligns with the results of interviewees from the Federal and State Housing Authority, that all they know is to use their employed staff to do any work on a housing estate. This reveals that the necessary understanding and awareness of the alternative housing estate management approaches that would be an instrument for sustaining the housing estates after development are not exploited. Therefore, it creates a gap in awareness and understanding of

how the housing estates could be sustainably managed so as to sustain the inflow of the accruable returns/benefits of developing the estates.

Furthermore, the direct observations made by the researcher confirmed that the FHA was the body charged with the responsibilities to manage and maintain, where necessary, all the constructed housing estates of the Federal Government within this region once completed. While with the SHA, for instance, the RSH&PDA was the authority to develop, manage and maintain estates provided by the State Government. However, in the management process, it was revealed that both authorities use only internal employed staff of the authorities particularly in the lands and housing section and those from the estate department such as the case of the RSH&PDA. This, in its entirety implied that the in-house approach was used to manage social (public) housing estates.

The analysed data and the findings from the four sources of evidence (semi-structured interviews, questionnaires, documentation and direct observations) in this case confirm within the research framework that the in-house estate management approach was being used compared to the other alternatives approaches in social (public) housing estates post-construction management. According to Banfield (2005) each approach has its own advantages and disadvantages and the one to use in the management of an asset was totally dependent on the stand-point of the managers and the available resources. However, the National Housing Policy (FMLHUD, 2012) instructs that the partnership approach was vital if sustainability in the social (public) housing estates was to be achieved. This could lead to the innovation that the Federal and State Housing Authorities develop a partnership estate management approach/method in the post-construction management of social housing estates for sustainability in the Niger Delta of Nigeria including the entire Nigerian housing estates sector management.

5.2.2. Social (Public) Housing Estates Ownership

The question in this theme tries to establish the owner/owners of the social housing estates under this research context. It establishes this through the 16 (Nr) semi-structured interviewees and 100 (Nr) questionnaire survey participant's definition of who built and then delivers the post-construction management of the social (public) housing estates.

The qualitative analysed results underscored that all the interviewees (total 16 Nr) observed the federal and state housing authority is responsible for all the government housing estates development and post-construction management and remain the dominant stakeholder in the

ownership of the social (public) housing estate units produced. In re-stating their perceptions, all the interviewees acknowledge creditability to the truth:

> *"... the exact number we cannot state as the authority has not at the moment a current correct housing estates stock database..."* (Transcribed Interviews, 2013)

The tenants/residents, external housing estates community and the professionals/contractors (total 12 Nr), all further commented:

> *"... how can we know the number of housing estates our state and federal government has provided to our people in this region if we are not deeply involved and/or included in the entire business case process..."* (Transcribed Interviews, 2013)

The quantitative results in this theme as indicated in Figure 5.2 show the respondents perceptions of who are owners of the social housing estates in the Niger Delta region of Nigeria. It indicates that most of the built social (public) housing estates were believed to be owned by the Federal Government of Nigeria 52% (52 Nr). The State Governments where perceived by 35% (35 Nr) of the respondents to own the social housing estates, while 6% (6 Nr) of the participants declined to identify the owner and 5% (5 Nr) of the respondents also declined knowledge about the owner of the housing estates. Whereas only 2% (2 Nr) of the participants perceived that the social housing estates are owned by the Local Government in the states. These results in the context of this study reveals that the social (public) housing estates are perceived to be at least 87.0% built, owned and managed by the Federal and State Government through its various internal staff and professionals/contractors.

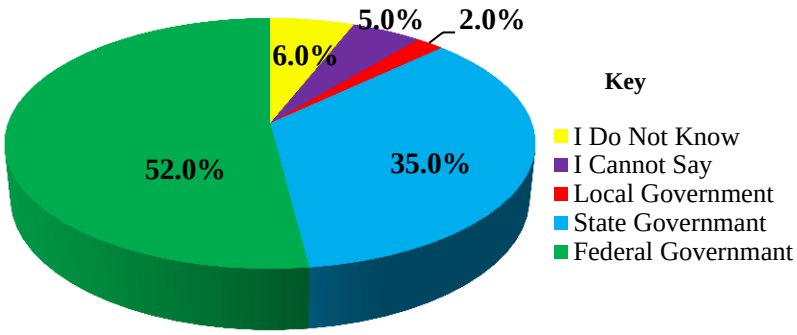

Figure 5.2 Social (Public) Housing Estates Owners

The documentary evidence in this theme clarified that the social (public) housing estates units are all built and owned by either the federal or state housing government, and that these social

(public) housing estates units are post-construction managed by the created housing authority of that particular government unit. This is especially supported by the FMLHUD (2012) documents where it provided that by such social housing estate units sustainable provision and post-construction management, would promote a reasonable and caring culture and re-establish the self-esteem of man. And it is now the sole social responsibility of the governments to the enormous majority of the populace who ordinarily would have not afforded or accessed housing for themselves (FMLHUD, 2012).

The direct observation in this theme by the researcher also reveals that all the social (public) housing estates units' within the Niger Delta region where provided or are being provided by either the federal or state government through their created housing authority, and they had remained the absolute owner and custodian to these social (public) housing estates units. This divulges is supported, and is in agreement with the findings in the other data collection instruments used in this theme above.

From the findings, some perceived ownership of the social (public) housing estates by the interviewees' raises some concern since 87% of the sample could provide the correct response, and only 2% provided an erroneous answer to the context. The reason for this error cannot say as it was not pursued further, but the researcher summarised it as inconsequential to affect the findings in this theme. Consequently, the triangulation of these findings in the research specific context confirms that virtually all the social (public) housing estates units' provided in the Niger Delta region of Nigeria are owned by either the State or Federal Government.

5.2.3. Maintenance Management Methods in Social (Public) Housing Estates

Regarding this theme, a question was asked seeking to identify and assess the level of application of the maintenance management options available in practice for social housing estates maintenance management. Two interviewees from each of the State Housing Authority and Federal Housing Authority (total 4 Nr) commented that once the housing estate development is completed and allocated with delivery of keys to a resident after accepting and authenticating the terms and conditions set out, the post-construction maintenance management practice was to respond only when faults and damage occurs. The response depends on how seriously it affects the housing estate, tenant and the built environment. The interviewees further added that the residents within the social housing estates are encouraged to form a common local association which could remedy some minor defaults and provide certain infrastructural facilities by themselves in the built estates environment. They

acknowledged that there is no known guideline or template stipulating how the social (public) housing estates will be continuously maintained.

All the professionals/contractors interviewees (total 4 Nr) commented that for the entire period of their involvement, housing estate maintenance management has had no common practice stipulated. Rather, the maintenance management process depends on whenever a scheduled inspection of the housing estates was made and the faults noted. The thinking on how to repair the faults only starts after the official inspection report. They are also not aware of any guidelines governing the maintenance management requirements and standards for housing/building maintenance in Nigeria.

The four interviewees from each of tenants/residents and external housing estates community (total 8 Nr), observed that they: *"have no idea of what maintenance management approach was used by the authority" (Transcribed Interviews, 2013)* since their participation was excluded in the business case.

This shows that the maintenance management practice currently used by the authorities for the social (public) housing estates was an unplanned maintenance management strategy. This could lead to ineffective social (public) housing estate sustainability in the region.

The quantitative analysed data and results in this case, indicated in Figure 5.3 show that the most used approach in the maintenance management of social (public) housing estates was unplanned maintenance 34.0% (34 Nr), while planned corrective maintenance was 26.0% (26 Nr) and reactive maintenance was 15.0% (15 Nr). The planned preventive maintenance was 16.0% (16 Nr) and only 9.0% (9 Nr) was reported as unknown maintenance management approach from the respondents. The results confirm that greater than 75.0% of the social housing estates was utilising an unplanned or corrective maintenance management approach compared to only 16.0% utilising a planned preventive maintenance management approach. This could indicate a potential reason why the social housing estates condition and/or situation are so poor (shown by Figure 5.4 on page 175 later).

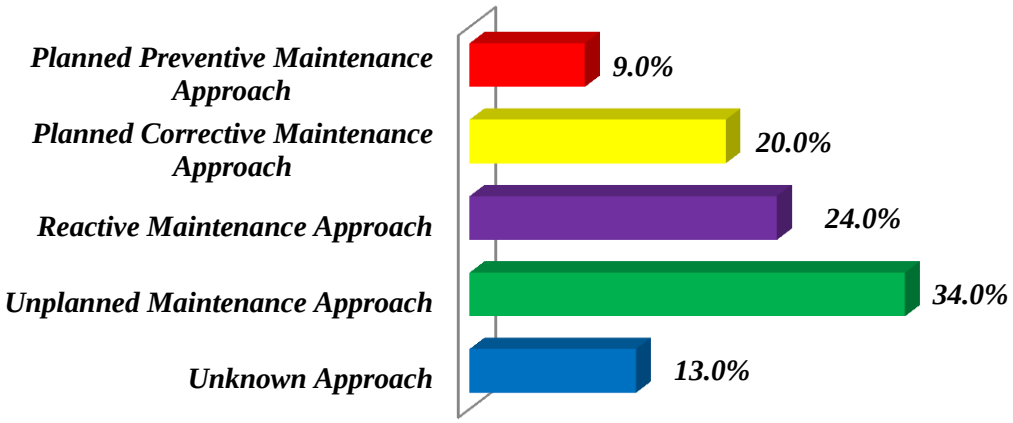

Figure 5.3 Housing Maintenance Management Methods

The documentary sources of evidence, when analysed gave indications of the maintenance approach practices used in managing housing estates after construction. In the documents (NHP, 2011; CAP 67 Law of Rivers State, 2001), it clarified that for the maintenance of housing estates or buildings, the main approach used by the FHA and the SHA was the unplanned maintenance management approach compared to the other alternative approaches that do exist in the academic literature (Bankfield, 2005; RICS, 2012). This was also elicited with the interview results from the management team of the FHA and SHA, that stated that "*our staff respond to the management of social (public) housing estates faults only when it occurs otherwise, no maintenance*"(Transcribed Interview, 2013*)*. At the same time, the FMLHUD (2012) document and the RSH&PDA Edict (1985) document specified that housing estate maintenance was important but failed to clarify which maintenance method would enhance the social housing estate post-construction management. The FMLHUD (2012, p. 61) document states: "*to ensure sustainable maintenance of all physical assets and infrastructure",* with the objective *"to develop a standard maintenance manual for all buildings and infrastructures"* These suggest that at the moment there is no standard maintenance requirement for implementation on the housing estate post-construction management which provides housing estates sustainability. Also, that the maintenance approach that would best be used in managing social (public) housing estates is unspecified within the context of the document. This reveals that there is fragmentation of the maintenance management methods that would enhance the social (public) housing estates continuity and reduce the bad/poor condition and shortage of housing estate stock in the Niger Delta region of Nigeria.

Direct observations carried out in some of the social housing estates by the researcher confirms that the maintenance method adopted was the unplanned and reactive maintenance approach and that this was strongly correlated with the findings from the semi-structured interview sources.

The triangulation of these various data sources in this theme therefore confirms that the maintenance management approach used in the social (public) housing estates post-construction management was the unplanned maintenance management method. Hence, in the research environment, this maintenance management approach would lead to not sustaining the social housing estates and its post-construction management strategy in the Niger Delta region of Nigeria. However, several researchers have opined that in order to keep the housing estates in tenantable condition and for the return or benefits of it provision to be achieved, the Planned Preventive Maintenance Management (PPMM) should be adopted by the organisation concerned (RICS, 2012; Cooper and Jones, 2008; Wood, 2003). The PPMM is a maintenance approach that is conceptualised, forecast, planned, budgeted and communicated to all concerned stakeholders on time, such that the issues of physical, economic and functional obsolescence is abated in the housing estate or building. At the same time, this agrees and is accepted in line with an organisational business case before implementation (Wood, 2003).

5.2.4. Social (Public) Housing Estates Condition and Situation

This theme and the related question seek to assess the current conditions of the social housing estates in the Niger Delta Region of Nigeria. Regarding qualitative interview sources of evidence, all the interviewees (total 16 Nr) commented that there were bad conditions/situations within all of the social (public) housing estates. This was as a result of poorly applied or implemented government policies' not supporting social (public) housing estates post-project management continuity in the region including Nigeria as a whole (Ebie, 2012; FMLHUD, 2012). There is also no standard document in Nigeria that defines the conditions of social (public) housing estates. According to the Queensland Government, Australia policy document, on maintenance management frameworks (2012), as it is contextualised in this study to be applicable and adoptable to the Nigeria social (public) housing estate unit's condition, provides the following definitions. Housing is defined as *"poor"* when issues such as: building has failed; not operational; not viable; unfit for occupancy or normal use; and environmental/contamination/pollution issues; are

predominantly existing in the housing estate units. While social (public) housing estate units condition is considered *"fair"* where such features as: badly deteriorated; potential structures problems; inferior appearance; major defects; and components fail frequently; are existing or exists, For "*satisfactory",* the condition definition is: significant defects are evident; worn finishes require maintenance; services are functional but need attention; deferred maintenance work exists; and average physical appearance is dominant to that social (public) housing estates unit. The definition of "*good*" is considered on the following parameters: minor defects; superficial wear and tear; some deterioration to finishes; and major maintenance work not required to the social (public) housing estates units. For "*excellent*" condition, it is when: there are no defects; and as new condition and appearance; are evident to the social (public) housing estates units.

Concerning the quantitative analysed data, the results as shown in Figure 5.4 was that 39.0% (39 Nr) of the social housing estates are believed to be in a poor condition, while 28.0% (28 Nr) are thought to be in a fair condition and 21.0% (21 Nr) are said to be in a satisfactory condition. Whereas only 12.0% (12 Nr) are alleged to be in a good condition and none (0.0%) are thought to be in an excellent condition. The results in the research confirm that 67.0% of the social (public) housing estates are currently in a poor/fair condition as against only 12.0% in a good condition.

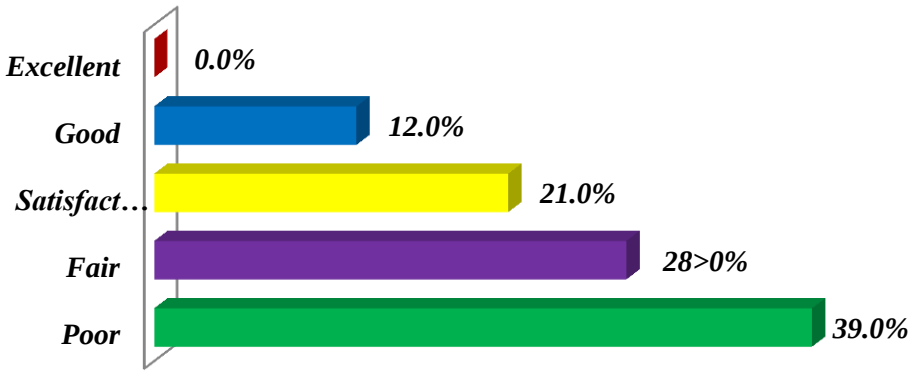

Figure 5.4. Current Social (Public) Housing Estates condition

In addition to the quantitative study in this theme, the case of the housing estates situation was considered which establishes the current situation with the social housing estates (that is, whether the housing estate was: completed and occupied; incomplete and occupied; completed and unoccupied; abandoned; and or vandalised; in the case study area). Figure 5.5 show results that 69.0% (69 Nr) reported that the housing estates were completed and occupied, while 11.0% (11 Nr) are incomplete and occupied and 10.0% (10 Nr) are

abandoned. Whereas 8.0% (8 Nr) are vandalised and only 2.0% (2 Nr) are completed and unoccupied by people. The overall results reveal that 71.0% of the housing estates sampled are currently completed compared to 29.0% incomplete, abandoned or vandalised in the Niger Delta region. This finding slightly disassociates with the assertion of Kadiri (2004) as stated in the literature that the number of housing estates abandoned, vandalised, incomplete and unoccupied was significantly in evidence in Nigeria. However, the combined indications of the results is that they are symptoms of unsustainable housing estate post-construction management practices in the Niger Delta region and in Nigeria at large which is the main focus of this research; rather than on whether a housing estate is completed, or incomplete, or abandoned or vandalised, which remain secondary in this present study.

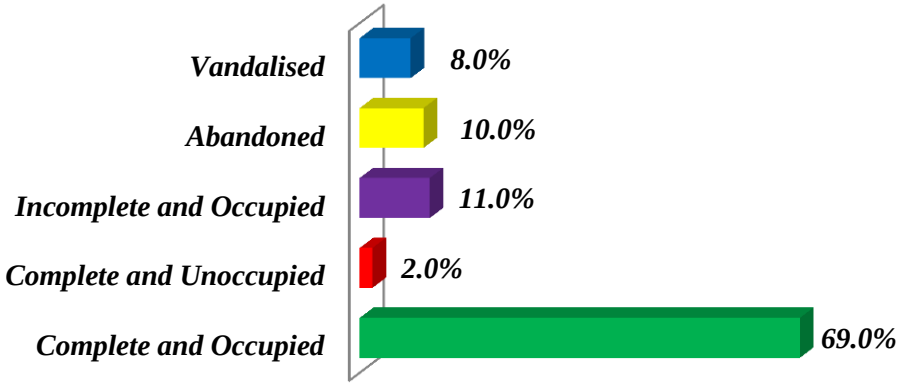

Figure 5.5. Social Housing Estates Development Situations

In the documentary sources, there were fewer documents from the FHA and SHA concerning the housing estates condition/situations. However, the FMLHUD (2012, p. 61) clarified that:

> "*evidence of lack of maintenance or effective maintenance of our infrastructural facilities can be seen everywhere in Nigeria and this has led to our large number of dilapidated buildings, rapid aging, persistent equipment break-down, loss of value and costly renovations"*

This reveals that the condition and situation of the social (public) housing estates was one that required urgent post- construction management attention so as to decrease the shortfalls in social housing estate stock. At the same time, indicating the need to incorporate a housing maintenance management policy within the ambit of the National Housing Policy as it would

enhance developed and executable systems of regularly scheduled maintenance management in social (public) housing estates for sustainability.

The direct observations regarding this theme by the researcher reveals that social (public) housing estates owned, built and managed by the Federal and State Governments were in bad/poor and deplorable conditions. It further reveals that social (public) housing estates are uncompleted, vandalised and completely abandoned in this region as seen in Figure 5.6 and 5.7 below.

Figure 5.6 Social (Public) Housing Estates Condition and/or Situations in Elele Alimini, Rivers State, Niger Delta

Figure 5.7. Examples of the Five Hundred Social (Public) Housing Estates Units in Isiokpo, Niger Delta Region of Nigeria

Finally, all the triangulated results in this matter within this present study context confirm that at least 80.0% of the social (public) housing estates were in a bad/poor and deplorable condition. It also confirms that greater than 71.0% of the housing estates were completed and occupied compared to the 29.0% abandoned and vandalised, supporting the perceived status as observed in the whole of the Niger Delta region. For the 29.0%, this has been

acknowledged by several public housing sector researchers in Nigeria including Kadiri (2004) and FMLHUD (2012). The FMLHUD (2012) depicts that Nigerian housing estate situations/conditions cannot be transformed to meet global housing requirements and standards in terms of human comfort, safety, security of tenure, affordability and accessibility if the way the public housing estates are currently managed and maintained was allowed to continue. This would not provide social housing estates sustainability and would not reduce the housing estates stock deficits prevalent in the region. It further provides support to the research aim that a change in the management and maintenance style and approach, at the same time incorporating all the stakeholders in public housing estates provisions and post-construction management was imperative in this circumstance.

5.2.5. Feasible Factor Impacts on Social Housing Estates Development Situation

The research in this theme seeks to identify, establish and assess the feasible factors and their impact rates in social housing estate development as confirmed by the analysed data and the results of the qualitative semi-structured interviews, questionnaire (Table 5.5, 5.6), archival documents and direct observations. Regarding the semi-structured interview results in this theme, all the interviewees (total 16 Nr) commented that: a lack of funds for budgeting for social housing maintenance; a lack of understanding of the housing estates project environment; an exclusion of the community perceptions in the management; a lack of understanding of the social benefits of housing estates; a lack of implementation, monitoring, evaluation and reporting; bureaucratic bottlenecks; a lack of maintenance; a lack of policy support and implementation; a lack of willingness to commit to housing estates sector post-construction management; and improper project costing and budgeting were major factors delineating social housing estates development in the Niger Delta region of Nigeria (Transcribed Interviews, 2013).

The four (4 Nr) professionals/contractors and two (2 Nr) external housing estates community interviewees confirmed the following interviewee remark:

> *".....most social (public) housing estates are provided and located without a "need assessment", which ascertains whether the housing estates are at the right location and at the right time with the right market and infrastructural facilities*"
>
> (Transcribed Interviews, 2013).

In addition, all the interviewees (16 Nr) noted that political instability and personal aggrandisement on the part of government leaders was a major cause of social housing estates

abandonment, vandalisation and the deplorable conditions in the Niger Delta (Transcribed Interviews, 2013).

Concerning the quantitative results, Tables 5.5, 5.6 and Figure 5.8 show the cumulative frequency of the variables in each category of factors and a ranking for the factors from the highest to lowest magnitudes of effects on social housing estates development situations.

Key:

IPC&B = Improper Project Costing and Budgeting;

NAL = Lack of Need Assessment;

PSL = Lack of Policy Support;

ML = Lack of Maintenance;

FL = Lack of Funds;

ISL = Lack of Leadership stability;

SA&EL = Lack of Stakeholders Assessment and Engagement;

WL = Lack of Willingness

BB = Bureaucratic Bottleneck.

Table 5.5. Cumulative Frequencies of Variables in Each Category of Factor Effect

	Cumulative Frequency of Variables in Each Category (*Cum f*)								
Key	***IPC&B***	***NAL***	***PSL***	***ML***	***FL***	***ISL***	***SA&EL***	***WL***	***BB***
No Direct Effect	0.02	0.06	0.01	0.02	0.01	0.03	0.05	0.04	0.05
Negligible Effect	0.14	0.18	0.08	0.11	0.11	0.13	0.10	0.15	0.30
Limited Effect	0.54	0.57	0.30	0.31	0.23	0.57	0.23	0.59	0.72
Adequate Effect	0.89	0.84	0.72	0.66	0.61	0.87	0.67	0.86	0.89
High Effect	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Table 5.6. Factor Effects Rank based on Cumulative Frequency of Variable Category

S/N	Variables Category	Low Cumulative Effects (A)		High Cumulative Effects (B)		Ranking based on *Cum f* of B
		Cum f	*Cum %*	*Cum f*	*Cum %*	
1	**IPC&B**	**0.16**	**14%**	**1.89**	**46%**	**8th**
2	**NAL**	**0.24**	**18%**	**1.84**	**33%**	**5th**
3	**PSL**	**0.09**	**8%**	**1.72**	**70%**	**4th**
4	**ML**	**0.13**	**11%**	**1.66**	**69%**	**2nd**
5	**FL**	**0.12**	**11%**	**1.61**	**77%**	**1st**
6	**ISL**	**0.16**	**13%**	**1.87**	**43%**	**7th**
7	**SA&EL**	**0.15**	**10%**	**1.67**	**77%**	**3rd**
8	**WL**	**0.19**	**15%**	**1.86**	**41%**	**6th**
9	**BB**	**0.35**	**30%**	**1.89**	**28%**	**8th**

The analysis reveals that improper project costing and budgeting (IPC&B) produces a high cumulative frequency effect of 1.89 (at least 46.0%) as against low cumulative effect of 0.16 (at least 14.0%), and is ranked 8th in the factors cases.

At the same time, lack of need assessment (NAL) was 1.84 (about 33.0%) high cumulative effect and 0.24 (18.0%) low cumulative effects, ranked 5th amongst the factors with high effect.

Similarly, lack of policy support (PSL) was 1.72 (70.0%) high cumulative effect and low cumulative effect of 0.09 (8.0%), ranked 4th in the list of the factors.

Lack of maintenance (ML) was 1.66 (69.0%) high cumulative effect and 0.13 (11.0%) low cumulative effect and was ranked 2nd amongst the factors with high effect.

The lack of funds (FL) was 1.61 (77.0%) high cumulative effect and 0.12 (11.0%) low cumulative effect, ranked 1st amongst the factors with the highest effect towards social housing estates development situations.

These results further show that leadership instability (ISL) was 1.87 (43.0%) high effect as against 0.16 (13.0%) low cumulative effect, and was ranked 7th amongst the factors with high effect.

Lack of stakeholder analysis and engagement (SA&EL) was 1.67 (77.0%) high cumulative effects compared to 0.15 (10.0%) low cumulative effect and was ranked 3rd amongst the factors with high effect.

Lack of willingness (WL) in housing estates provision shows 1.86 (41.0%) high cumulative effects as against 0.19 (15.0%) low cumulative effects ranking 6th amongst factors with high effect.

Bureaucratic bottlenecks (BB) were 1.89 (28.0%) high cumulative effects as compared to 0.35 (30.0%) low cumulative effects, ranked equally 8th amongst the factors with high effects.

The findings in the quantitative results within the research context reveal that the combined effects of these factors has at least a 54.0% contribution to high impact in the social housing estates completed and occupied by people as against a 14.0% combined low effect. This further reveals that these factors are important success or failure factors for the successful development of sustainable social (public) housing estates provision and post-construction management in the Niger Delta region of Nigeria.

Regarding this theme, few of the documents from the FMLHUD (2012), the FHA and SHA acknowledged that a lack of funding, bureaucratic bottlenecks, a lack of adequate and experience manpower, the de-merging and merging of institutions and maintenance management team members within the authority and government due process have been a major challenge in the efforts to manage housing estates after development. For instance, the RSH&PDA Edict (1985, p. 10) provides that the "*funds, resources and property of the Authority shall consist of such sum as may be provided by the State Government and any loan, subvention or grant made to the Authority must be by the approval of the State Government''.* This reveals that the Housing Authority was limited to such funds as were approved by the government for the performance of their function. Any housing estates faults occurring after the sum approved has been completely utilised and not specifically defined in the earlier estimated costs will be left not responded to or unrepaired until a new budget approval was obtained from the government. This increases the discomfort the fault creates to the residents and may further impair the property itself, which eventually causes increases to the cost due to the delays in maintenance. In the FMLHUD (2012) document, it is provided

that one of the greatest problems facing effective housing delivery and efficient built environment management in the country is the instability and capacity gaps caused within the various arms responsible for housing estate delivery and post-construction management. This reveals that housing estates post-construction management is impaired by the problems and the need to realign practices from time to time to remain abreast with emerging and future challenges and maintaining stability in the funding and institutional arrangements for sustainability of the housing estate management.

By direct observation of the evidence of this theme, the results clarified that the significant majority of the management team used in the post-construction management of the social (public) housing estates were mainly men. This was observed in both the Federal Housing Authority management team and that of the State Housing Authority teams such as the RSH&PDA. For example, in the RSH&PDA and particularly the estates section, (which is the section charged with responsibility for the post- construction management of the social (public) housing estates), 71.4% were men while only 28.6% were women.

This generally reveals that there was an imbalance and neglect on the part of employing and including women in the post-construction management team for the social (public) housing estate sustainability.

The results above identify that nine (9) major factors have a reported impact on the development stages of the housing estates and that their rate or level of impact/effect varies. It infers that a lack of funds, lack maintenance and a lack of stakeholder assessment and engagement are the most influential factors compared to the other factors. However, the findings in a general perspective confirm that all factors were influential in determining the outcome of a social housing estates development as there were strong associations between these factors

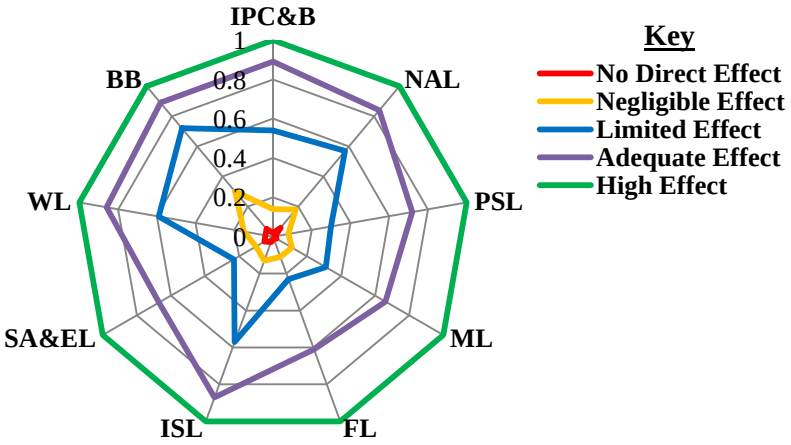

Figure 5.8. Cumulative Frequency Graph on Each Factor Effects

Key:

IPC&B = Improper Project Costing and Budgeting;

NAL = Lack of Need Assessment;

PSL = Lack of Policy Support;

ML = Lack of Maintenance;

FL = Lack of Funds;

ISL = Lack of Leadership stability;

SA&EL = Lack of Stakeholders Assessment and Engagement;

WL = Lack of Willingness

BB = Bureaucratic Bottleneck.

The absence of these factors in the study circumstance could lead to not having sustainable management of social housing estates, if the Federal and State Governments continue to take no action on correcting their influence. Therefore, sustainable management of social housing estates requires the various organisations (Federal and State Housing Authorities) to make appropriate strategic plans and decisions in order to reduce the risks and effects of certain issues such as these factors before engaging in development and post-construction management of social (public) housing estates (Ihuah and Eaton, 2013; Ihuah and Fortune, 2013; Cooper and Jones, 2008). At the same time, these organisations should ensure that all stakeholders are included in the processes without any restriction on gender. This leads to an innovation that brings balance in gender deployment compared to what exists now in the management of social housing estates in the Niger Delta region of Nigeria.

5.2.6. Barriers Encountered in Social Housing Estates Post-Construction Management

This question seeks to identify the challenges commonly faced or encountered by the Federal and State Housing Authorities management team (as consolidated from the literature review) in their itinerary of providing the sustainable post-construction management of social housing estates. Out of the sixteen (16 Nr) interviewees, twelve (12 Nr) comprising of four each of the Federal and State Housing Authority management team (8 Nr) and four of the professionals/contractors (4 Nr) commented that their success in delivery post-construction

management of social housing estates was faced with many significant challenges. These challenges ranged from: a lack of sufficient funds provision; tenants' conflicts and permissions; insufficient staffing; monitoring, evaluation and reporting; rent collection difficulties; and a lack of housing estates/assets registry in the authority. In addition, four (4 Nr) out of the twelve (12 Nr) housing authority interviewees confirmed the statement as thus:

> *''...in most cases our efforts to respond to a fault in social housing estates had been a failure as the tenants refuses to permit access to inspect such fault''* and in so many of the situations; *''... been called or informed about two tenants fighting/quarrelling within a social housing estates environment and thereby discomforting other residents peace and joy in the estates units''* (Transcribed Interview, 2013).

Further, four (4 Nr) interviewees from the Federal and State Governments Housing Authority in re-stating their perceptions acknowledged the creditability to the truth:

> *"... the exact number they cannot say as the authority has not at the moment a current correct housing estates stock database, while the housing authority in partnership with the owners (State and Federal Government) is still in the process of establishing a comprehensive database for all the government social (public) housing estates stock"* (Transcribed Interviews, 2013).

The tenants/residents and external housing estates community (4 Nr) commented by completely acknowledging these challenges. One of the interviewees reacted in this way;

> *"...many times a particular tenant was always quarrelling with another tenant who lives in the flat upstairs over who control certain facilities in the housing estate''* (Transcribed Interviews, 2013).

These findings reveal that these problems were actually posing challenges to the management teams in their efforts to provide sustainable management of social housing estates.

Regarding the analysis of quantitative results, and in the case of the funding problem, most of the participants said this was highly encountered 51.0% (51 Nr) compared to 23.0% (23 Nr) said typically encountered and 14.0% (14 Nr) said it was a limited encounter. Another 8.0% (8 Nr) said it was a negligible encounter and only 4.0% (4 Nr) said there had been no direct encounter. In all, it reveals that funding as a problem was encountered by 74.0% as against 12.0% who had no direct encounter with the funding problem in the post-construction management of the social housing estate contained within the study sample.

In the case of inadequate staffing as a barrier, out of the 100 respondents, 32.0% (32 Nr) believed it was highly encountered, while 34.0% (34 Nr) said it was typically encountered and 17.0% (17 Nr) said it was a limited encounter. Whereas only 9.0% (9 Nr) and 8.0% (8 Nr) said it was a negligible encounter and not directly encountered respectively. The overall result in this case reveals that inadequate staffing was a highly encountered barrier for 66.0% compared to 17.0% having no direct encounter in the course of delivering post-construction management of social housing estates.

When the case of monitoring, evaluation and reporting was asked, 51.0% (51 Nr) said it was highly encountered problem, while 22.0% (22 Nr) said it was typically encountered and 14.0% said it was a limited encounter. Whereas 12.0% (12 Nr) said it was a negligible encounter and only 1.0% (1 Nr) said there had been no direct encounter. This case in its overall result reveals that the barrier was encountered by 73.0% of the respondents as against 13.0% having no direct encounter in social housing estate post-construction management.

The case for rent collection difficulty as a barrier was seemingly different where the majority of the respondents said it was a limited encounter 37.0% (37 Nr), whereas 23.0% (23 Nr) said it was highly encountered and 19.0% (19 Nr) said it was typically encountered. The remaining 14.0% (14 Nr) and 7.0% (7 Nr) said it was a negligible encounter and not directly encountered respectively. Overall, it reveals that the problem/barrier was encountered by 42.0% compared to 21.0% having no direct encounter.

The case of lack of an up-to-date assets registry problem was also different as 46.0% (46 Nr) of the participants said it was a limited encounter, while 20.0% (20 Nr) said it was a typical encounter and 14.0% (14 Nr) said it was a negligible encounter. Only 12.0% (12 Nr) and 8.0% (8 Nr) said it was highly encountered and not direct encounter respectively. The results in this case show that the problem was encountered by 32.0% as against 22.0% not directly encountering the problem in social housing estates post-construction management.

Out of 100 respondents to this question, 35.0% (35 Nr) said that the tenants/resident conflicts barrier was typically encountered; whereas 25.0% (25 Nr) said it was a limited encounter and 20.0% (20 Nr) said it was highly encountered. While only 9.0% (9 Nr) and 7.0% (7 Nr) said this problem was a negligible encounter and not directly encountered respectively. The overall findings in this instance reveals that the problem is encounter by 55.0% compared to 16.0% having no direct encounter while delivering social housing post-construction management.

Finally, the overall results from the quantitative evidence in this research context reveals that these problems/barriers were encountered by 57.0% of the respondents as against approximately 17.0% of the respondents having no direct encounter. This confirms that these problems are major problems being commonly faced by the Federal and State Housing Authorities (including their agents/professionals/contractors). In efforts to provide sustainable post-construction management of social (public) housing estates, these problems are considered to be significant and need to be addressed within the proposed framework. These results are demonstrated in Figure 5.9 and Table 5.7 below.

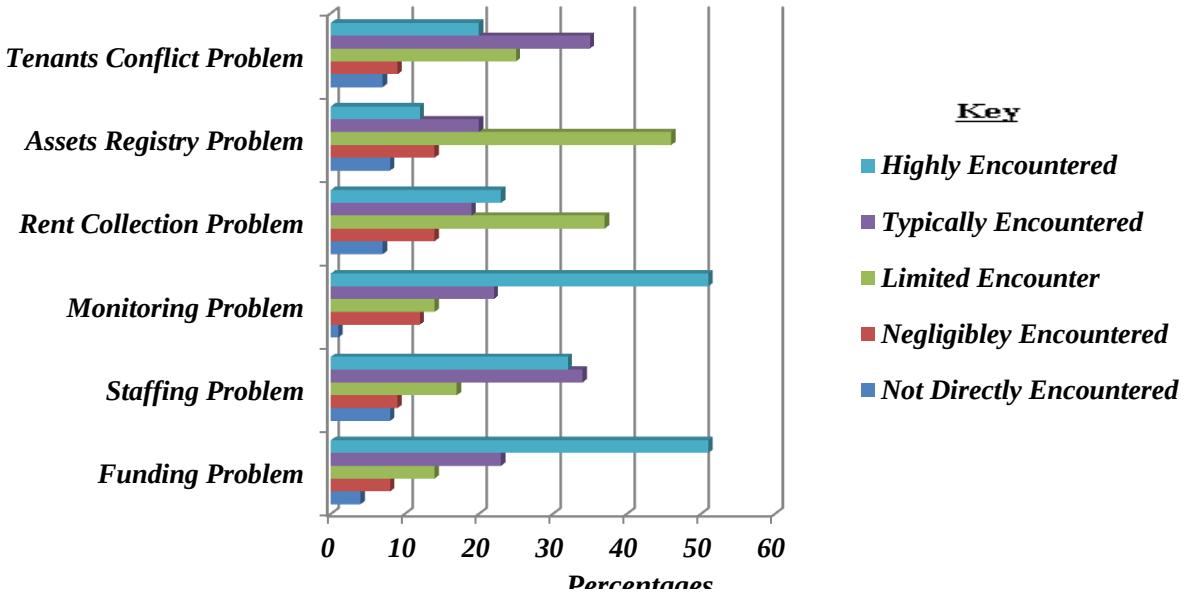

Figure 5.9. Barriers Encountered in Social Housing Estates Post-Construction Management

Table 5.7. Barriers Encountered in Social Housing Estates Post-Construction Management

Problems	Cases											
	No Direct Encounter		Negligible Encounter		Limited Encounter		Typical Encounter		High Encounter		Total	
	N	Percent	N	Percent	N	Percent	N	Percent	N	Percent	N	Percent
Funding Problem	4	4.0%	8	8.0%	14	14.0%	23	23.0%	51	51.0%	100	100.0%
Staffing Problem	8	8.0%	9	9.0%	17	17.0%	34	34.0%	32	32.0%	100	100.0%
Monitoring Problem	1	1.0%	12	12.0%	14	14.0%	22	22.0%	51	51.0%	100	100.0%
Rent Collection Problem	7	7.0%	14	14.0%	37	37.0%	19	19.0%	23	23.0%	100	100.0%
Assets Registry Problem	8	8.0%	14	14.0%	46	46.0%	20	20.0%	12	12.0%	100	100.0%
Tenants Conflict Problem	7	7.0%	9	9.0%	25	25.0%	35	35.0%	20	20.0%	100	100.0%
	Combined as overall not encountered (17.0%)						***Combined as overall encountered (57.0%)***					

Concerning archival documents analysed in this theme, specifically the FMLHUD (2012) clarified that the major challenges facing the management of social (public) housing estates was a lack of funding, and implementation, monitoring and review. Others included the lack of accurate statistics of the numbers of public housing estates stock, inadequate technical manpower/staff and a lack of capacity development and a lack of non-inclusion of the stakeholders in the management decision. However, the documents from the Federal and State Housing Authority do not make known these challenges but within CAP 67, the law of Rivers State (2001) establishing the State Housing Authority, there was a restriction that the authority management team cannot spend any amount outside the approved sum. This reveals that no management and maintenance task could be responded to in the social housing estates after the approved amount was expended, hence posing a challenge in effectively providing post-construction management for sustainability in social housing estates.

Consequently, the overall findings in this theme confirm that: inadequate fund provision; tenants/residents conflict and permissions to access the housing estates when fault occurs; difficulties in collection of rents; monitoring, evaluation and reporting; in lack of accurate statistics of the housing estates stock; and inadequate technical staff and capacity development; were the major problems faced by the Federal and State Government Housing Authorities in their efforts to effectively and efficiently deliver sustainable management of social housing estates in the Niger Delta region of Nigeria. The management of such social housing estates present challenges which depend on the unique nature and characteristics of the individual housing estate, but how the housing estates should be managed was based much more on the material and financial resources provided for the management and maintenance tasks (Stapleton, 1994; Banfield, 2005). This leads to the research recommendation that organisations (such as the Federal and State Housing Authority) should consider every social housing estate as unique and should provide a plan and strategy for its sustainable management before completing the development. This issue will be returned to in the development of the proposed framework.

5.2.7. Social Housing Estates Maintenance Management Factors

Regarding this theme, the investigation seeks to identify and assess the level of effect of certain maintenance factors (*Figure 5.10, page 202*) in social housing estates maintenance management which are reported by the literature as very significant in providing sustainable management of social housing estates, if this is to be achieved in the Niger Delta region of Nigeria. RICS (2012) suggested that those factors likely to affect the delivery of maintenance programmes in housing estates needed to be tackled without delay as any delays would undermine the sustainability of the housing/building benefits/returns.

Semi-structured interviews were conducted in this theme. All the interviewees from the Federal and State Housing Authority and the professionals/constructors (12 Nr) acknowledged that social (public) housing estates maintenance management was influenced by: improper evaluation of a maintenance task; delays in carrying out maintenance works; inadequate approved funding for maintenance works; improper costing of maintenance works; a lack of knowledge by the maintenance staff; weather changes; increasing costs of materials for maintenance works; and improper scheduling of maintenance works. In affirming these factors, an interviewee from the housing authorities stated thus:

> *''... faults in the housing estates are reported and a bill of quantity is prepared for approval but this would take more than three months to get approved, and by this*

time, the cost for the repairs must have gone far above what was approved because of the constantly increasing building materials costs in our market today and increased wear and tear due to our weather condition, therefore the maintenance work cannot be carried out...'' (Transcribed Interviews, 2013)

The four (4 Nr) interviewees from the tenants/residents and external housing estate community while agreeing to these factors enumerated above, observed that whenever a fault in the housing estate and the built environment (such as an electricity fault, water supply fault) was reported to the Federal and State Housing Authority it takes several months for these faults to be repaired or maintained. An interviewee from the tenants/residents in re-stating their opinion commented as thus:

''...no money, no money, no money, was usually the reasons the housing estates maintenance management teams always give us when they are to maintain that faults after reporting, and undermined the discomfort these fault creates to the tenants/resident and the external estate community who in one way or the other benefit from these services...'' (Transcribed Interviews, 2013).

This statement was fully supported by the other tenants/residents interviewees.

The further exploration of this theme through a quantitative approach (a questionnaire survey) concerned these identified maintenance management factor effects. The results in Figure 5.10 show that:

The Improper Evaluation of Maintenance Task (IEMT) was rated as an average effect by 33.0% of the respondents; while another 33.0% (33 Nr) rated it as of limited effect and 21.0% (21 Nr) rated it as a high effect. Whereas 9.0% (9 Nr) rated it as a negligible effect and 4.0% (4 Nr) rated it as having no direct effect.

For Maintenance Works Delays (MWDS), 34.0% (34 Nr) rated it as having a high effect, 31.0% (31 Nr) rated it as an average effect and 23.0% (23 Nr) rated it as of limited effect. A further 4.0% (4 Nr) rated it as of negligible effect and 8.0% (8 Nr) rated it as having no direct effect.

In the case of Inadequate Funding (IADF); 42.0% (42 Nr) rated it as having a high effect while 34.0% (34 Nr) rated it as having an average effect and 17.0% (17 Nr) confirmed it as of limited effect. Only 3.0% (3 Nr) and 4.0% (4 Nr) rated it as of negligible effect and having no direct effect respectively.

With Improper Costing of Maintenance Works (ICMWS), 42.0% (42 Nr) rated it as having an average effect; whereas 24.0% (24 Nr) rated it as of limited effect and 20.0% (20 Nr) rated it as having a high effect. A further 10.0% (10 Nr) rated it as a negligible effect and only 4.0% (4 Nr) rated it as having no direct effect.

In the case of Lack of Knowledge Maintenance Staff (LOKMS), 38.0% (38 Nr) rated it as an average effect; whereas 27.0% (27 Nr) rated it as having a high effect and 21.0% (21 Nr) rated it as of limited effect. A further 8.0% (8 Nr) rated it as having a negligible effect and only 6.0% (6 Nr) rated it as having no direct effect.

Regarding Improper Schedule of Maintenance Works (ISMWS), 35.0% (35 Nr) rated it as of limited effect, followed by 30.0% (30 Nr) participants rating it as an average effect and 22.0% (22 Nr) rated it as having a high effect. Whereas 9.0% (9 Nr) rated it as a negligible effect and barely 4.0% (4 Nr) rated it as of no direct effect.

For Weather Changes (WCS), 39.0% (39 Nr) rated it as of limited effect, while 26.0% (26 Nr) rated it as an average effect and 15.0% (15 Nr) rated it as having a high effect. With 13.0% (13 Nr) rating it as a negligible effect and 7.0% (7 Nr) rated it as of no direct effect.

Finally, for the case of Material Increasing Costs (MCI) 43.0% (43 Nr) rated it as having an average effect, while 29.0% (29 Nr) rated it as of limited effect and 19.0% (19 Nr) rated it as having a high effect. Another 4.0% (4 Nr) rated it as having a negligible effect and 5.0% (5 Nr) rated it as of no direct effect.

Table 5.8. Social Housing Estates Maintenance Management Factors Effect Level

Factors	Cases											
	No Direct Encounter		Negligible Encounter		Limited Encounter		Average Encounter		High Encounter		Total	
	N	Percent	N	Percent	N	Percent	N	Percent	N	Percent	N	Percent
IEMT	4	4.0%	9	9.0%	33	33.0%	33	33.0%	21	21.0%	100	100.0%
MWDS	8	8.0%	4	4.0%	23	23.0%	31	31.0%	34	34.0%	100	100.0%
IADF	4	4.0%	3	3.0%	17	17.0%	34	34.0%	42	42.0%	100	100.0%
ICMWS	4	4.0%	10	10.0%	24	24.0%	42	42.0%	20	20.0%	100	100.0%
LOKMS	6	6.0%	8	8.0%	21	21.0%	38	38.0%	27	27.0%	100	100.0%
ISMWS	4	4.0%	9	9.0%	35	35.0%	30	30.0%	22	22.0%	100	100.0%
WCS	7	7.0%	13	13.0%	39	39.0%	26	26.0%	15	15.0%	100	100.0%
MCI	5	5.0%	4	4.0%	29	29.0%	43	43.0%	19	19.0%	100	100.0%
	Combined as overall not effect (13.0%)						*Combined as overall high effect (60.0%)*					

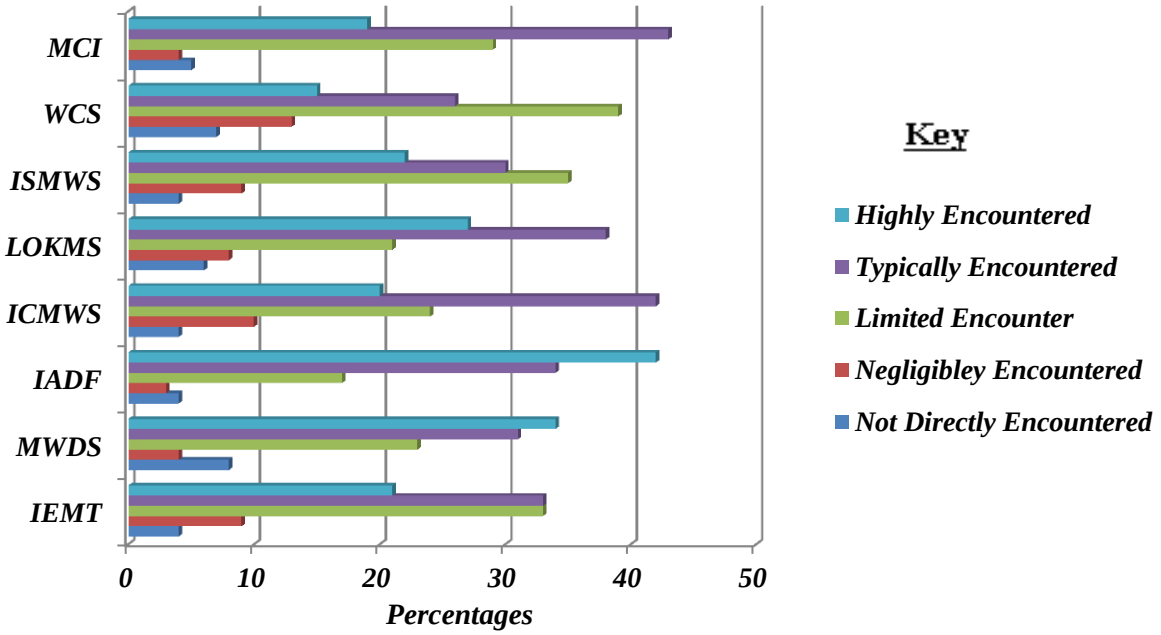

Figure 5.10. Social Housing Estates Maintenance management Factors Effects Level

The documentary evidence analysed in this theme reveals and confirmed that these factors were the major factors affecting the maintenance management cost in housing estates or buildings and required tackling if successful maintenance of housing estates was to be achieved (RICS, 2013; Hassanain, *et. al.,* 2013; El-Haram and Horner, 2002). However, the documents from the FHA and SHA did not explain these factors but the FMLHUD (2012) acknowledged most of these factors as challenging effective, sufficient and sustainable maintenance management of the public housing estates in Nigeria and that they should be incorporated in housing estate management strategies.

In direct observation, the researcher's ability to scrutinise some of these factors was limited but two of the factors were prominent in the observations including the weather changes and materials increasing costs. It was observed in one of the housing estates where a repair or roof change was carried out, that the maintenance team disappeared from the site when it was obvious to them that rain was about to fall, not minding the discomfort to the tenants from their actions and they never came back that day even when it had stopped raining. The materials increasing costs such as cement were a daily issue, particularly where the price per cement bag increases constantly.

The findings from this theme and in relation to the overall study context confirms that these factors had at least 60.0% effect or influence on the efforts by the Federal and State governments housing authorities management team to provide an effective and sustained maintenance management of the social housing estates compared to the 13.0% rating of these factors as having no direct effect or influence on the maintenance management of the estates. This leads to the social housing estates not being maintained or being improperly maintained, and as such would deliver no sustainability to the public housing estates, if not abated before commencing any maintenance management task or work in social (public) housing estates. This will be returned to in the formulation of the framework.

5.2.8. Maintenance Standards Awareness

The questions in this theme seek to establish from the respondents/participants both from the qualitative sources and quantitative sources whether there is a maintenance management requirement/standard or template in practice to use in the maintenance of social housing estates which defines and builds maintenance culture in the Niger Delta and/or Nigeria as a whole. With the qualitative structured interviews, all the interviewees (16 Nr) commented that any maintenance management required standard for maintaining social (public) housing estates have not come to their knowledge. The twelve interviewees (12 Nr) from Federal and

State Housing Authority and the professionals/contractors further added that this lack of a maintenance management strategy or template has led to no maintenance culture practice in the built environment and the lack also encourages people not to be concerned about maintaining houses and housing estates. They re-stated their comments by specifically acknowledging thus:

> *''...the focus of this study is very proper at this time and for us, it is good to have a guide to use for the maintenance management of housings and/or housing estates even though it may not be social (public) housing estates. But, let it be that such exist which would be used by Federal, State governments and private landlords so that people know what to do at any stage in order to maintain and manage their housing estates. And that if this framework is provided, we believe, the housing stocks challenges will eventually reduce...''* (Transcribed Interviews, 2013)

Regarding quantitative evidence as shown in Figure 5.11, out of the 100 participants, 53.0% (53 Nr) stated no awareness of such standard, while 25.0% (25 Nr) had a stated high awareness and 15.0% (15 Nr) had stated negligible awareness. Only 5.0% (5 Nr) had a stated limited awareness and 2.0% (2 Nr) had an adequate awareness. This result confirms that over 68.0% of respondents were unaware or had a negligible awareness of any required maintenance standards in how the social housing estates and the immediate built environment should be maintained compared to a total of 27.0% indicating having an adequate or high awareness of a standard.

However, since these were self-administered responses, it was not possible to pursue the issue of these people claims, to have an adequate or high awareness of a standard. The unknown responses of the interviewees and the level of any documentary evidence suggests that either the respondents to the questionnaire had their own provisional standard or where professing a level of technical awareness that unjustified. Overall, the researcher is satisfied that, within this research context, there is no substantive evidence that a maintenance standard exists.

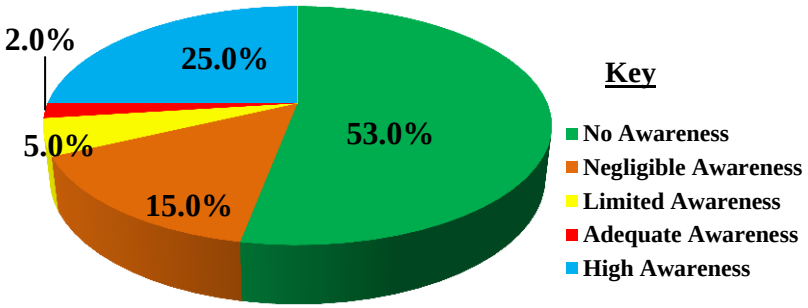

Figure 5.11 Maintenance Standards Awareness

The documentary evidence in this theme was apparently different as no documents from either the Federal or State Housing Authority made any clarification in this matter. At the same time, the National Housing Policy (NHP, 2011) document did not clarify that the government had any maintenance requirements standards. So, it can be concluded that such standards do not exist in past or present housing policies. Statements from the National Housing Policy confirm that there was no standard required in order to provide sustained maintenance and post-construction management of social (public) housing estates.

The direct observations carried out by the researcher clarified that both authorities while using the unplanned maintenance management method (Housing Maintenance Management Methods (Figure 5.3 and Table 5.7)) and in-house estate management approach (Housing estate management method /approaches/practices (Figure 5.1/Table 5.5)), do not adhere to any predetermined framework, but instead applied a matter of what was conformance to the authority as contributing with the tenants/residents/customers satisfactions or well-being and comfort in the built environment.

The overall results contrasted in this theme and in line with the research perspective was confirmed that there was at the moment no framework or guide to be adhered to while making efforts in managing social (public) housing estates in a sustainable manner. These support the main research aim of developing a framework which could be used for the sustainable post-construction management of social (public) housing estates.

5.3. TEST OF SIGNIFICANCE

Following the results from above, a Pairwise Analysis of Variables of the level of experience compared against management approaches and maintenance management methods adopted was tested. This is aimed to establish whether a relationship/association actually exists, measures the strength of any correlation and whether the association effect size was influential to the results in social housing estates conditions.

Table 5.9. Pairwise Analysis of Experience; Management Approaches; and Maintenance Methods

Variable	***rho***	***Management Approaches***	***Maintenance Methods***
Experience	Correlation Coefficient	0.316	0.285
	Sig. (2tail)	0.001	0.004
	N	100	100

Table 5.9 shows the result of an analysis of Spearman's correlation coefficient for the level of experience compared against the management approaches and maintenance management methods used in the management of social housing estates. The results determined from the Spearman's correlation coefficient ranges presented earlier in Table 5.4, reveal that there was a weak positive correlation/association between experience and management approaches, *rho = 0.316, n = 100, sig. /p ≤ 0.001*, with lower levels of experience being associated with the less effective management approaches adopted in the management of social housing estates. In addition, the results reveal that there was also a weak positive association between the level of experience and maintenance methods, *rho = 0.285, n = 0.004, sig. /p = ≤ 0.004,* with lower levels of experience being associated with the less effective maintenance management methods adopted in the management of the social housing estates.

In the overall research context, the findings reveal that the management approach and maintenance management method adopted/used in the current management of social housing estates was shown to be weakly limited to the effectiveness of sustainable housing estates. The association/agreement of experience and the two variables and estate management method and maintenance management approach was expected to be much stronger. The housing estates conditions are generally poor based on the findings in the results of Table 5.8 and Figure 5.4 above. The unexpected weak association cannot be explained within the research data and would benefit from further investigation, and this is returned to in the final chapter of this work.

5.4. SUMMARY OF FINDINGS

This chapter has demonstrated, through the combination of four sources of data, supported with literature substantiation, the various estate management methods used in the current social (public) housing estates management practice as well as the maintenance management approaches of maintaining the present public housing estates in the Niger Delta region of Nigeria. The findings in this present chapter and in the research circumstance confirmed the following:

- That at least 87% of the social (public) housing estates in the Niger Delta of Nigeria were built, owned and post-construction managed by the Federal and State Governments via their various housing authority (*Refer to Figure 5.2, page 182*);
- That the in-house estate management method was mostly used in the current post-construction management of social (public) housing estates as against the other three alternatives (*Refer to Figure 5.1, page 180*);
- That the unplanned maintenance management approach was mostly adopted in the maintenance of social (public) housing estates compared to the reactive, planned corrective and planned preventive maintenance management approaches (*Refer to Figure 5.3, page 185*);
- That greater than 88.0% of the social (public) housing estates condition does not sustain people's comfort, safety, security of tenure and accessibility as required by sustainability programmes in the Niger Delta region of Nigeria (*Refer to Figure 5.4; 5.6 and 5.7, pages 187 and 189*);
- That the majority of the social (public) housing estates were completed and occupied by people as in contrast to a significant minority that are complete and unoccupied, vandalised, abandoned and incomplete and occupied in the study area (*Refer to Figure 5.5, page 188*). However, this significant minority are fundamental to the sustainability agenda of the Niger Delta;
- Nine factors crucial to the sustainable housing estates development have been identified: including a lack of funds; a lack of maintenance; a lack of strong policy support; lack of needs assessment; improper project costing and budgeting; leadership instability; lack of stakeholder assessment and engagement; lack of willingness; and bureaucratic bottlenecks. Amongst these factors, the lack of funds was the most influential and was followed by other factors based on cumulative effects (R*efer to Table 5.5, 5.6 and Figure 5.8, page 191, 192 and 195*);

- Inadequate funding; inadequate staffing; lack of monitoring, evaluation and reporting; rent collection difficulties; lack of or inaccurate asset registry; and tenants/residents conflicts; were the major problems that the Federal and State Governments Housing Authorities face in the process of delivering the maintenance and post-construction management of the social housing estates (*Refer to Table 5.7 and Figure 5.9, page 199 and 198*);
- Eight factors have a significant effect and impact on the FHA and SHA in efforts to provide maintenance management of social housing estates including: improper evaluation of maintenance task; maintenance work delays; inadequate funds; improper costing of maintenance works; lack of appropriate knowledge of maintenance staff; improper schedules of maintenance works; weather changes; and increasing building materials costs (R*efer to Table 5.8 and Figure 5.10, page 203*);
- That currently, there was no framework adhered to by the FHA and SHA in the post-construction management of social housing estates for sustainability (*Refer to Figure 5.11, page 206)*;
- That the association/correlation of estate management methods, maintenance management approaches and experience was very weak and could be ineffective and insufficient to successfully provide sustainable changes in social (public) housing estate conditions which are presently bad/poor in the Niger Delta of Nigeria (*see Table 5.9, page 207*).

The next chapter of this study considers the social (public) housing estates post-construction management and stakeholders' involvement importance (research objective 3).

CHAPTER 6: STAKEHOLDERS INCLUSION AND IMPORTANCE IN SOCIAL HOUSING ESTATES MANAGEMENT PRACTICE IN THE NIGER DELTA OF NIGERIA (RESEARCH OBJECTIVE 3)

6.1. INTRODUCTION

This chapter presents the analysis; results and discussions on case study research carried out in order to identify underpinning concepts in stakeholder management and establish the relevance/importance of their inclusion/involvement in the management of social housing estates, as well as, their impact by exclusion or inclusion in efforts to deliver sustainable housing estates post-construction management. It also provides a discussion of the results utilising a data triangulation approach and cross- referencing to the support in the reviewed literature on the area. The analysed data as earlier provided in the previous section (Chapter Five) were collected using semi-structured interview, questionnaire survey, and documentary and observation techniques. Furthermore, the main sub-objectives of this chapter are:

- To ascertain who are the stakeholders in the post-construction management of social (public) housing estates;
- To assess the awareness level and rate of inclusion/involvement of stakeholders in post-construction management practice of the social (public) housing estates;
- To identify and assess the reasons for excluding stakeholders in development and post-construction management of the social (public) housing estates;
- To identify and assess stakeholders impacts on the practice and efforts to provide social (public) housing estates post-construction management;
- To assess the relevance/importance of stakeholders inclusion in post-construction management of social housing estates.

The analysed fieldwork generated data in this section utilised the same techniques and instruments utilised by the preceding chapter (Chapter Five) of this research. For example, these include: NviVo 10 packages; SPSS (version 20.0) packages; iterative pattern coding; and content analysis tools; for the semi-structured interview, questionnaire, documentation and observation generated data. At the same time, Table 6.1 provides the main sub-objectives

of this chapter and the interview and questionnaire enquiries applied to the respondents in order to explore and address the objectives of this research study.

Table 6.1. Research Objectives and Investigating Questions in Each Instrument

	Main Research Objectives	***Interview Questions***	***Questionnaire Questions***
1	Identify the underpinning concept in stakeholder's management and the relevance/importance of stakeholder's inclusion/involvement in the post-construction management practice of the social (public) housing estates.	AQ1; AQ2; AQ3; AQ4; AQ5; CQ1; CQ2; CQ3; CQ4; CQ5; CQ6; and CQ7.	AQ1; AQ2; AQ3; AQ4; AQ5; CQ1; CQ15; CQ16; CQ17; CQ18; CQ19; CQ20; and CQ21.

Finally, the overall findings of this chapter will in collaboration with the findings of the preceding and subsequent chapters support the subsequent formulation of the proposed framework that could be applied in order to provide sustainable post-construction management practice of the social (public) housing estates in the Niger Delta region of Nigeria.

6.2. ANALYSIS, RESULTS AND DISCUSSION BASED ON TRIANGULATION

The first step to analyse this section of generated data was the test of reliability and validity which differs based on how small or big the sample items are together with the scale of measurement. This, which cannot be underrated, aimed to attest if all the items in the questionnaire and interviews are consistent and if they all weigh the same underlying construct (Davis, 2013, Pallant, 2013, 2007). It is suggested that values above 0.7 are acceptable but values above 0.8 are more preferable (DeVellis, 2003). Therefore the analysed data and results shown in Table 6.2 justified the validity and reliability of the generated fieldwork data of this chapter.

Table 6.2. Test of Data Reliability

Cronbach's Alpha	***Numbers of Items***
0.810	**34**

Table 6.2 shows the data reliability analysis for all 34 items. The result indicates satisfaction with the Likert scale since it has a very good internal consistency and reliability with Cronbach's alpha coefficient of 0.810 for 34 items. This confirms and supports that all the

data are addressing the objectives of this chapter; and that of the main research study; was very reliable, consistent, and therefore was used for further investigations within the main research domain.

To provide support to the test of reliability and validity of the evidence collected and to draw conclusions on the statistical significance, the normality test analysis were carried out as indicated in Table 6.3 below. The results indicate a Kolmogorov-Smirnov non-significant value of 0.000 for all 34 numbers of items (as against a significance value of more than 0.05 that indicates data is/are normally distributed) (Pallant, 2013). This confirms that the data are non-normally distributed and should be tested using a non-parametric instrument such as Spearman's correlation coefficient (Pallant. 2013, 2007; Creswell and Plano Clark, 2011; Saunders, *et. al.,* 2009). A test result that utilised Spearman's correlation coefficient analysis, and the range of figures earlier stated in Table 5.4 (*page 178*) of the previous section (Chapter 5) will be used in making decisions on the strengths of variables associations. This is on the premise that the overall research intent is to provide an integrative strategy for all the dependable concepts (appropriate estate management method; appropriate maintenance management approach; stakeholder involvement/inclusion; and with the beneficial sustainability factors), in social (public) housing estate post-construction management.

Table 6.3. Test of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Stakeholder Involvement/Inclusion	.247	100	.000	.828	100	.000
Government at Planning and Design stage	.170	100	.000	.885	100	.000
Professionals/Contractors at Planning and Design stage	.210	100	.000	.875	100	.000
Management Team at Planning and Design stage	.155	100	.000	.911	100	.000
Residents/Tenants at Planning and Design stage	.329	100	.000	.687	100	.000
External Housing Estate Communities at Planning and Design stage	.347	100	.000	.642	100	.000
Government at Implementation Stage	.283	100	.000	.845	100	.000
Professionals/Contractors at Implementation stage	.264	100	.000	.864	100	.000
Management Team at Implementation stage	.218	100	.000	.882	100	.000
Residents/Tenants at Implementation stage	.239	100	.000	.872	100	.000
External Housing Estate Communities at Implementation stage	.243	100	.000	.876	100	.000
Government at Post-Construction Management stage	.266	100	.000	.878	100	.000
Professionals/Contractors at Post-Construction Management stage	.250	100	.000	.802	100	.000
Management Team at Post-Construction Management stage	.177	100	.000	.917	100	.000
Residents/Tenants at Post-Construction Management stage	.281	100	.000	.763	100	.000
External Housing Estate Communities at Post-Construction Management stage	.398	100	.000	.568	100	.000
Government at Monitoring, Evaluation and Reporting stage	.229	100	.000	.876	100	.000
Professionals/Contractors at Monitoring, Evaluation and Reporting stage	.380	100	.000	.554	100	.000
Management Team at Monitoring, Evaluation and Reporting stage	.198	100	.000	.891	100	.000
Residents/Tenants at Monitoring, Evaluation and Reporting stage	.425	100	.000	.569	100	.000
External Housing Estate Communities at Monitoring, Evaluation and Reporting stage	.422	100	.000	.563	100	.000
Project Concepts Denied	.232	100	.000	.823	100	.000
Project Benefits Understanding lacking	.256	100	.000	.802	100	.000
Access Project Proposal Information Refusals	.261	100	.000	.751	100	.000
Understanding Bureaucratic Process in Award of Contracts denied	.242	100	.000	.807	100	.000
Financial Expenditure Reduction	.240	100	.000	.818	100	.000
Stakeholders to the Social Housing estates	.279	100	.000	.793	100	.000
Involvement Level of Stakeholders Inclusions	.260	100	.000	.794	100	.000
Stakeholders relevance	.203	100	.000	.866	100	.000

a. Lilliefors Significance Correction

In this chapter, the themes that emerge after analysis of the generated data, and on which discussion is provided based on the findings as relating to the objective and sub-objectives of this present chapter and the entire research were as follows:

6.2.1. Social (Public) Housing Estates Stakeholders

This theme seeks to understand and identify the various stakeholders in social (public) housing estates development and the post-construction management. In the qualitative semi-structured instrument, all the interviewees (16 Nr = 100%) reveal and confirm that the stakeholders in the public housing estates development and particularly the post-construction management are: the owners (Federal and State governments); the professionals/contractors that do the housing estates construction works; the tenants/residents (that is, intending or already in possession of the housing estates); the management decision-makers/maintenance management team; and external housing estates communities near to the housing estates. Further, an interviewee from the external estates community and supported by two other interviewees from the professionals/contractors group acknowledged by saying:

> *"…it has been known to government that we have a major stake in the housing estates they had built, but our cry has been that they do not consider us as people having a stake in the development and management of the housing estates. And that is why some of us have turned round to do displeasing things to the housing estates itself..."* (Transcribed Interviews, 2013)

However, two interviewees each from the Federal and State government housing authorities (total 4 Nr = 25%) while supporting the opinions of the interviewees as stated above, remarked in addition to the stated stakeholders that any individual or organisation that contributes towards either detracting or enhancing the housing estates development and management should be a stakeholder. Subjectively, they would remain a minor stakeholder in comparison to the governments that owns and built the social (public) housing estates.

Regarding the analysed questionnaire quantitative data in this theme, the results in Figure 6.1 show that of the identified stakeholders including: Governments (Federal, State and Local and/ or owners); the Management Team/Decision Makers; Professionals/Contractors; Residents/Tenants; and External Estate Communities; 48.0% (48 Nr) strongly agree that these groups are relevant stakeholders in social (public) housing estate development and post-construction management, while a further 24.0% (24 Nr) agree that these groups are stakeholders and 15.0% (15 Nr) said they were unsure on these groups as being relevant stakeholders. Whereas 10.0% (10 Nr) disagree to these groups being relevant stakeholders and only 3.0% (3 Nr) strongly disagree to the groups being relevant stakeholders.

The findings reveal that 72.0% of the respondents agree or strongly agree that these groups are relevant stakeholders in the social (public) housing estates as compared to 13.0% of the respondents that strongly disagreed or disagreed. This confirms that: governments; management teams/decision makers; professionals/contractors; residents/tenants; and external estate communities; are relevant stakeholders in social (public) housing estates post-construction management.

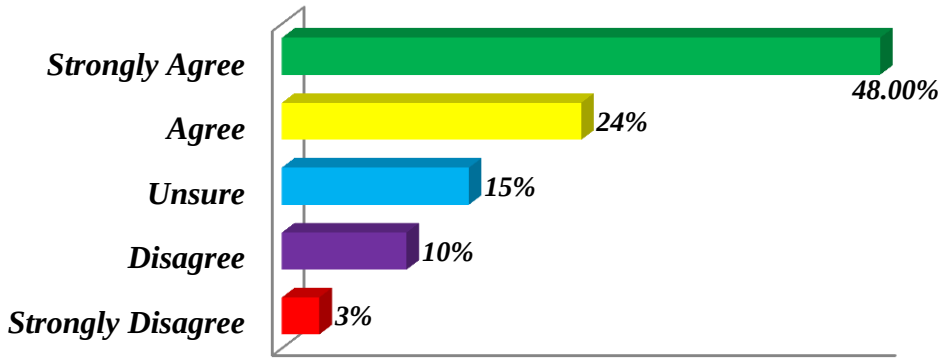

Figure 6.1. Stakeholders in Social (Public) Housing Estates

The documentary analysis results gathered from both Federal Housing Authority and State Housing Authority documents clarified that the identification of stakeholders before undertaking the post-construction management of the public housing estates were not a major concern to either authority. However, a generic statement is made about stakeholders in the National Housing Policy (FMLHUD, 2012) document acknowledging that:

> "*…for effective implementation, coordination and evaluation of all housing related policies and programmes and for their impact assessment, an independent body comprising of professionals in the industry, eminent citizens and other relevant stakeholders should be put in place…"* (FMLHUD, 2012, p. 90)

This, in the FMLHUD (2012) document reveals that this independent group is to be identified such that it allows their involvement to provide the proper monitoring, evaluation and reporting on the housing sector progress, permitting an holistic view to be deduced of performance of the housing sectors. The gap remains of identifying the actual stakeholders of the housing estates at the onset of the planning and design phase through to the post-construction management practice, as well as, ensuring their inclusion/involvement for sustainability. But, since this gap has been created within the FHA and SHA documents and management teams, it subjectively indicates that the majority of the housing authority

management staff will be unaware of the actual stakeholders to be included, and identification would not be performed before committing to the management of the housing estates.

The direct observations conducted by the researcher clarified the definition of stakeholders such that you can only be a stakeholder if you are an individual or organisation that has a stake in those activities that can affect other activities from going on (El-Gohary, *et. al.*, 2006). The research confirms that the governments, professionals/contractors, the management, the external estate community (the community that originally owned the land on which the housing estates were developed) and the prospective tenants/residents were relevant stakeholders in the housing estates development and post-construction management.

6.2.2. Awareness of Stakeholder Involvement /Inclusion in SPHE Management

This theme assesses the awareness (of those in practice of managing social housing estates) of the involvement/inclusion of the relevant stakeholders in their decision making, implementation and monitoring of the work activities involved in post-construction management of social (public) housing estates. Regarding the qualitative semi-structured interviews, it was clarified by all the interviewees (16 Nr = 100%) that who is a stakeholder and what they can do in the housing estate development and post-construction management particularly the governments housing estates were not unknown to them. However, the four (4 Nr = 25%) interviewees from the FHA and SHA stated that despite their awareness of all these groups, they still need some capacity development on how to properly define and manage them in an effort to sustain the housing estates during and after development or provision of the housing estates. Further an interviewee from the SHA stated that:

> *"…our housing estates development projects have on several occasions been disrupted by various groups claiming that they were left out in the development and the reason for this is that we were limited in defining these groups…, and even where we have done that, the implementation of involving these groups becomes a challenge as the government must accept and approve such involvement otherwise they are not involved…"* (Transcribed Interviews, 2013)

However, an interviewee from the external estate communities agreed with the housing authorities' management teams' recognition of stakeholders' awareness but had this to say:

> *"…it is disheartening to us that we are still left out of the housing estate post-construction management business case and I think one of the main reasons is for us*

not to understand the conditions that are required in the project development and post-construction management…" (Transcribed Interviews, 2013)

From the interviewees' opinions, it is deduced that there was reasonable awareness of what is a relevant stakeholder but negligible awareness of the positive or negative consequences that could be associated to the stakeholder groups. The implementation style that would be required for their inclusion or involvement is a challenge such that the staff required capacity development in stakeholders' management techniques in social (public) housing estate post-construction project management era.

The quantitative questionnaire analysed data, the results of which are shown in Figure 6.2 indicate that 13.0% (13 Nr) of the respondents rated the awareness of the authorities and their management teams of who are relevant stakeholders as being of no awareness; while a further 22.0% (22 Nr) rated it as having a negligible awareness. 35.0% (35 Nr) rated the authorities and its agents as having a limited awareness. Whereas only 20.0% (20 Nr) rated the authorities and its agents as having an adequate awareness and 10.0% (10 Nr) rated the authorities and its agents as having a high awareness.

The findings reveal that the authorities and its agencies awareness of who are the relevant stakeholder's were 70.0% having no or negligible or limited awareness as compared to 30.0% having adequate or high awareness of the stakeholder's in the development and post-construction management of social (public) housing estates in the Niger Delta region of Nigeria. This indicates that the majority of those involved in social (public) housing estates post-construction management practice did not have a reasonable awareness of which the relevant stakeholders' are in social (public) housing estates that needed inclusion/involvements in the entire processes.

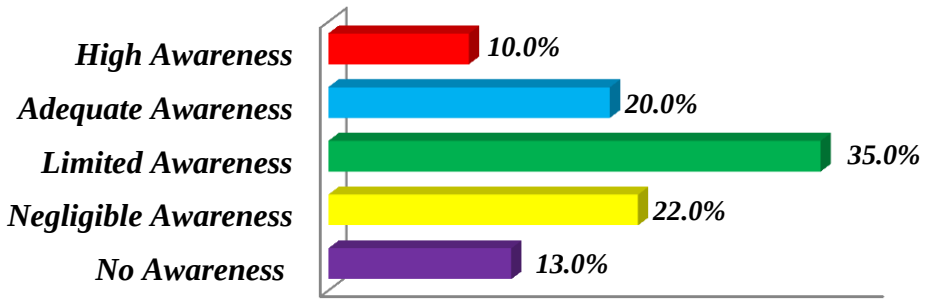

Figure 6.2 Stakeholders' Involvement Awareness in the Management Process

The documentary evidence from the National Housing Policy (2011) clarified that relevant stakeholders inclusion/involvement in the post-construction of the social (public) housing estates was vital for housing estate sustainability. For example, the policy states that:

> ‘‘*... Utilise the service of experienced and accredited… Competent firms for… maintenance management...*’’ (FMLHUD, 2012, p. 62)

The Rivers State Housing and Property Development Authority Act (CAP 67, Law of Rivers State, 2001) confirms that there was a need at any time for authority collaboration with other professionals or bodies in their efforts to provide the post-construction management of the state owned housing estates. Further, in the Nigerian Vision 20: 2020 (2010) document, the need for stakeholder's involvement at all levels to ensure and enhance housing provision and post-construction management were clarified. The portent in all the documents is that the stakeholders that needed inclusion in the housing estates post-construction management were not explicitly identified rather the general word *‘‘stakeholders’’* was adopted. Since stakeholders are those who affect or impact the success of a project development and post-construction management, it would have been expected that those who should be involved at any stage of the post-construction management of the housing estates would be made clear and understood by FHA and SHA management teams. This avails the social (public) housing estate management teams of the opportunity to adequately include the already known stakeholders in their post-construction management activities.

On direct observation of the FHA and SHA sources, it was apparent that the residents/tenants and the community through their representative were stakeholders that needed involvement in the post-construction management of the social (public) housing estates but were largely absent from the composition of the FHA and SHA management teams. Therefore, the research subjectively confirms that all those that are relevant stakeholders and needed involvement at all time in efforts to provided sustainable post-construction management of housing estates were not properly identified by either government housing management authority before or during the social (public) housing estates post-construction management activities.

The overall findings in this theme and in the present research context confirm that there was a lack of awareness of relevant stakeholders and the need for their involvement/inclusion in the post-construction management activities. The post-construction management was limited to

the staff of the housing authority to attend to the process whilst there was a general awareness of stakeholder during housing estate project development/provision.

The awareness and identification of who are relevant stakeholders in any project management, such as in the post-construction management of social (public) housing estates was necessary (El-Gohary, *et. al.,* 2006; Medeiros de Araujo and Bramwell, 1999). This should be expected to identify all the relevant stakeholders with the potential to affect the successful management of the housing estate provision, and that their level of inclusion/involvement to be such that the housing estate provided would have achieved improved sustainability in the built environment.

6.2.3. Stakeholders Inclusion/Involvement Rate in Social Housing Estates Management

The research in this theme assesses the variously identified stakeholders' practical involvement in the management of social housing estates after their provision/construction. Regarding this theme, the four (4 Nr = 25%) interviewees from the government housing authorities noted that the relevant stakeholders inclusion/participation was throughout all the housing estates development and post-construction management phases. They emphasised that this was because the stakeholders were significant to the success of the housing estates project post-construction management and development. They further commented that all of the identified stakeholders were obvious groups to the governments and their agencies for inclusion/involvement in the effective post-construction management of their social (public) housing estates. The professionals/contractors, external housing estates community and the tenants/residents' interviewees (total 12 Nr = 75%) however observed that there was no involvement or inclusion whatsoever in practice. This is in direct contradiction to the government housing authorities. An interviewee from the tenants/resident stated:

> *"...We are not included and even when we cry too much, the government will try to involve us at a very low level and in principle they tell us we will be involved adequately but at the end makes us irrelevant to the housing estates development and post-construction management activities..."* (Transcribed Interviews, 2013).

The professionals/contractors and the external housing estates community (total 8 Nr = 50%) further commented that:

> *''...it is this lack of involvement and lack of recognition by the governments that the stakeholder's are significant to the success of the social (public) housing estates ..., that creates the opportunities of material prowling in the housing estates project sites*

and subsequent vandalism of the property by some individuals from the community...''
(Transcribed Interviews, 2013*)*

These findings reveal that all of the relevant stakeholders are not fully involved in the current post-construction management of social (public) housing estates and this lack of involvement could lead to ineffective stakeholder knowledge of the development and the subsequent failure of the benefits accruable from the social (public) housing estates in the proper course of its post-construction management. However, the housing authority staff claimed the involvement of the stakeholders but in a clear sense, this claim was to pacify the authority so as to maintain their job status and to confirm the bureaucratic "due process" specified.

In the quantitative questionnaires for this theme, the assessments were considered in four different stages such as: planning and design; implementation; post-construction management; and monitoring, evaluation and reporting stages. This provided a clear rationale to define the rate of the stakeholder's participation in each phase, and thereafter establish the entire involvement level of each of the stakeholders' in the social (public) housing estates post-construction management. The analysed data and results in this circumstance were as reported under each relevant stakeholder identified previously utilising the stages earlier mentioned, as follows:

6.2.3a. Government as a Relevant Stakeholder

This sub-theme in the quantitative questionnaires aims to assess and evaluate the participation/inclusion of government as a relevant stakeholder in the entire process of providing an effective post-construction management of social (public) housing estates for sustainability.

From Table 6.4 results, it shows that the governments (owner) as a relevant stakeholder at the planning and design (P&D) stage were rated by the respondents 8.0% (8 Nr) as having no direct inclusion; while 10.0% (10 Nr) rated them as a negligible inclusion and 30.0% (30 Nr) rated them as a limited inclusion. Whereas 25.0% (25 Nr) rated them as having a significant inclusion and 27.0% (27 Nr) rated them as having a high inclusion.

In the implementation (IMPL.) stage, Table 6.4 indicates that the government was 7.0% (7 Nr) rated as having no direct inclusion, while 6.0% (6 Nr) rated them as having a negligible inclusion and 21.0% (21 Nr) rated them as having a limited inclusion. 46.0% (46 Nr) rated them as having a significant inclusion and 20.0% (20 Nr) rated them as having a high inclusion.

At the post-construction management (PCM) stage of the social (public) housing estates, it reveals in Table 6.4 that the government was 9.0% (9 Nr) rated as having no direct involvement, while 12.0% (12 Nr) rated them as having a negligible involvement and 20.0% (20 Nr) rated them as having a limited involvement. Whereas 21.0% (21 Nr) rated them as having a significant involvement and 38.0% (38 Nr) rated them as having a high involvement.

The monitoring, evaluation and reporting (MER) stage of social (public) housing estates management practice, the Table 6.4 indicate that the government was 26.0% (26 Nr) rated as having no direct involvement, while 43.0% (43 Nr) rated them as having negligible involvement and 17.0% (17 Nr) rated them as having limited involvement. Another 5.0% (5 Nr) rated them as having significant involvement and the remaining 9.0% (9 Nr) rated them as having high involvement.

Key: ***P & D. = Planning and Design Stage; IMPL. = Implementation Stage; PCM = Post-Construction and Management Stage; MER = Monitoring, Evaluation and Reporting Stage.***

Table 6.4. Government Current Involvement Level in Social Housing Estate Management Practice

	Government -Stakeholder											
	No Direct Involvement		*Negligible Involvement*		*Limited Involvement*		*Significant Involvement*		*High Involvement*		*Total*	
	N	Percent	N	Percent	N	Percent	N	Percent	N	Percent	N	Percent
P&D. Stage	8	8.0%	10	10.0%	30	30.0%	25	25.0%	27	27.0%	100	100.0 %
IMPL. Stage	7	7.0%	6	6.0%	21	21.0%	46	46.0%	20	20.0%	100	100.0 %
PCM. Stage	9	9.0%	12	12.0%	20	20.0%	21	21.0%	38	38.0%	100	100.0 %
MER Stage	26	26.0%	43	26.0%	17	17.0%	5	5.0%	9	9.0%	100	100.0 %
	Combined Average of Govt. none Involved in all Stages				*Combined Average of Govt. Involved in all Stages*							

Table 6.5. Combined Percentage of Involvement and Non-involvement of Government in the Housing Estate Management practice

	Government- Stakeholder			
Indicator	*P&D. Stage*	*IMPL. Stage*	*PCM. Stage*	*MER Stage*
Involvement	82.0%	87.0%	79.0%	31.0%
Non-Involvement	18.0%	13.0%	21.0%	69.0%

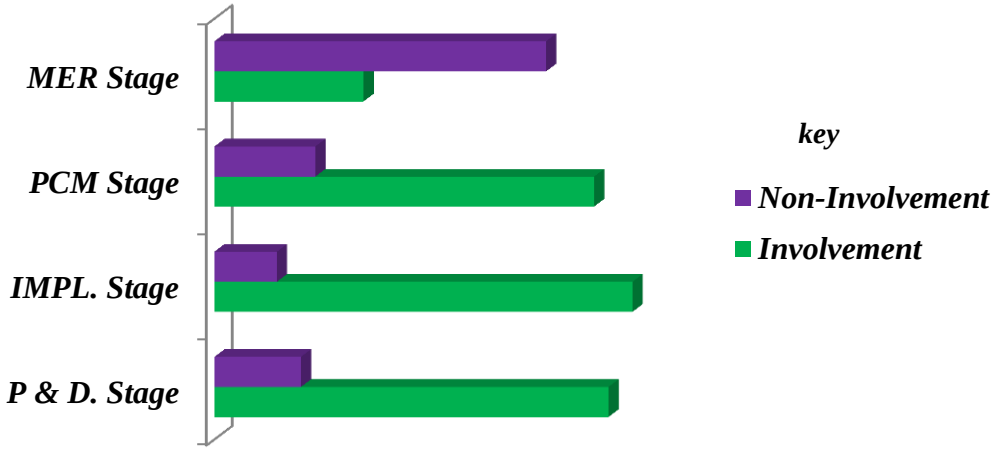

Figure 6.3. Combined Average Percentage of Government Involvement and Non-involvement in Social (Public) Housing Estates Management Practice

The combined average percentages in Table 6.4, 6.5 and Figure 6.3, reveal that government inclusion/involvement in the planning and design stage was 82.0% compared to 18.0% non-involvement. Whilst at the implementation stage, it indicates 87.0% involvement as compared to 13.0% non-involvement. At the post-construction management stage; it was 79.0% involvement as against 21.0% non-involvement. The monitoring, evaluation and reporting stage, the government had 31.0% involvement and 69.0% non-involvement. In all, the cumulative combined percentage indicates that government was 79.0% involvement as against 21% non-involvement in the activities to manage the social housing estates.

This confirms in the study context that government was significantly involved in the processes that should provide the sustainable post-construction management of social (public) housing estate.

6.2.3b. Professionals/Contractors as a Relevant Stakeholder

This section in the quantitative questionnaires assesses the involvement/inclusion level of professionals/contractors as a relevant stakeholder in the efforts to deliver an effective social

(public) housing estate post-construction management which should support the sustainability of the housing estates.

In the planning and design (P&D) stage, the professionals/contractors as a stakeholder were 17.0% (17 Nr) rated as having no direct involvement, while 37.0% (37 Nr) rated them as having negligible involvement and 36.0% (36 Nr) rated them as having limited involvement. Another 5.0% (5 Nr) rated them as having significant involvement and the remaining 5.0% (5 Nr) rated them as having a high involvement.

While at the implementation (IMPL.) stage, 9.0% (9 Nr) rated them as having no direct involvement, while another 9.0% (9 Nr) rated them as having negligible involvement and 26.0% (26 Nr) rated them as limited involvement. Whereas 44.0% (44 Nr) rated them as having significant involvement and 12.0% (12 Nr) rated them as having high involvement.

At the post-construction management (PCM) stage, the situation was apparently different as 38.0% (38 Nr) rated them as having no direct involvement, while 32.0% (32 Nr) rated them as having negligible involvement and 14.0% (14 Nr) rated them as having limited involvement. 12.0% (12 Nr) rated them as having significant involvement and only 4.0% (4 Nr) rated them as having high involvement.

The monitoring, evaluation and reporting (MER) stage also saw a different position as the professionals/contractors was 67.0% (67 Nr) rated as having no direct involvement, while 30.0% (30 Nr) rated them as having negligible involvement and 7.0% (7 Nr) rated them as having limited involvement. Only 1.0% (1 Nr) of the respondents rated them as having significant involvement and 2.0% (2 Nr) rated them as having high involvement. These results are shown in Table 6.6.

Key: ***P & D. = Planning and Design Stage; IMPL. = Implementation Stage; PCM = Post-Construction and Management Stage; MER = Monitoring, Evaluation and Reporting Stage.***

Table 6.6. Professionals/Contractors Current Involvement Level in Social Housing Estate Management Practice

	Professionals/Contractors-Stakeholder											
	No Direct Involvement		Negligible Involvement		Limited Involvement		Significant Involvement		High Involvement		Total	
	N	Percent	N	Percent	N	Percent	N	Percent	N	Percent	N	Percent
P&D. Stage	24	24.0%	37	37.0%	29	29.0%	5	5.0%	5	5.0%	100	100.0%
IMPL. Stage	9	9.0%	9	9.0%	26	26.0%	44	44.0%	12	12.0%	100	100.0%
PCM. Stage	38	38.0%	32	32.0%	14	14.0%	12	12.0%	4	4.0%	100	100.0%
MER Stage	60	60.0%	30	30.0%	7	7.0%	1	1.0%	2	2.0%	100	100.0%
	Combined Average of Professionals/Contractors Non-involved in all Stages				*Combined Average of Professionals/Contractors Involved in all Stages*							

Table 6.7 Combined Percentage of Involvement and Non-involvement of Professionals/Contractors in the Housing Estate Management stage and in practice

	Professionals/Contractors - Stakeholder			
Indicator	*P&D. Stage*	*IMPL. Stage*	*PCM. Stage*	*MER Stage*
Involvement	39.0%	82.0%	30.0%	10.0%
Non-Involvement	61.0%	18.0%	70.0%	90.0%

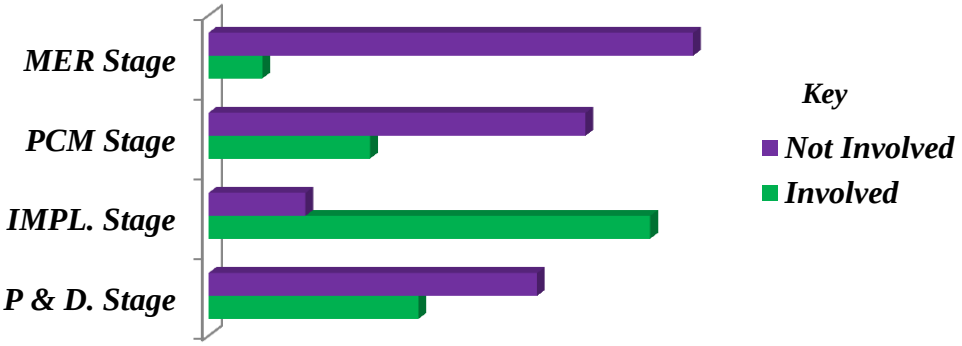

Figure 6.4. Combined Average Percentage of Professionals/Contractors Involvement and Non-involvement in Social (Public) Housing Estates Management stages and in Practice

From the combined average percentages in Table 6.7 and Figure 6.4, it shows that professionals/contractors involvement in the planning and design was 39.0% involvement compared to 61.0% non-involvement, whereas at the implementation stage, it was 82.0% involvement as compared to 18.0% non-involvement and in the post-construction

management stage, it was 30.0% involvement as against 70.0% non-involvement. For the monitoring, evaluation and reporting stage, the professionals/contractors had 10.0% involvement and 90.0% non-involvement. The cumulative combined average percentage reveals that the professionals/contractors were awareness 40.0% involved as compared to 60.0% non-involvement in the efforts to effectively manage and sustain the social (public) housing estates.

It therefore confirms in the research frame that the professionals/contractors were predominantly not involved in the business case that should ensure the sustainable post-construction management of social (public) housing estate. This also proves the findings in the previous section that management activities to the social (public) housing estates are solely performed by the in-house staff of the housing authorities in the Niger Delta and in Nigeria as a whole.

6.2.3c. Management Team as a Relevant Stakeholder

Regarding this sub-theme in the quantitative questionnaires section to assess the level of involvement/inclusion of the identified relevant stakeholders in the social housing estate management practice, it establishes the management team involvement and/or non-involvement in the whole business case.

Hence, Table 6.8 shows that at the planning and design (P&D) stage, the management team was 12.0% (12 Nr) rated as having no direct involvement, while 18.0% (18 Nr) rated them as having a negligible involvement and 31.0% (31 Nr) rated them as having a limited involvement. Whereas 22.0% (22 Nr) rated them as having a significant involvement and only 17.0% (17 Nr) rated them as a high involvement/inclusion.

The Table 6.8 further shows that during the implementation (IMPL.) stage, they were rated by 10.0% (10 Nr) as having no direct involvement/ inclusion, while only 6.0% (6 Nr) rated them as having a negligible involvement/ inclusion and 38.0% (38 Nr) rated them as having a limited involvement/ inclusion. Whereas 31.0% (31 Nr) rated them as having significant involvement/inclusion and 15.0% (15 Nr) rated them as having a high involvement/inclusion.

In the post-construction management (PCM) stage, the Table 6.8 results was 7.0% (7 Nr) rating them as having no direct involvement, while 11.0% (11 Nr) rating them as having a negligible involvement/inclusion and 14.0% (14 Nr) rating them as having a limited involvement/inclusion. Whereas 43.0% (43 Nr) rated them as having a significant involvement/inclusion and 25.0% (25 Nr) rated them as having a high involvement/inclusion.

But, in the same Table 6.8 for the monitoring, evaluation and reporting (MER) stage, it was apparently unlike the others as it had 21.0% (21 Nr) rating them as having no direct involvement, while 43.0% (43 Nr) rated them as having negligible involvement and 19.0% (19 Nr) rated them as having limited involvement. Only 9.0% (9 Nr) rated them as having significant involvement and the last 8.0% (8 Nr) rated them as having high involvement.

Key: *P & D. = Planning and Design Stage; IMPL. = Implementation Stage; PCM = Post-Construction and Management Stage; MER = Monitoring, Evaluation and Reporting Stage.*

Table 6.8. Management Team Current Involvement Level in Social Housing Estate Management stages and in Practice

	Management Team - Stakeholder											
	No Direct Involvement		Negligible Involvement		Limited Involvement		Significant Involvement		High Involvement		Total	
	N	Percent	N	Percent	N	Percent	N	Percent	N	Percent	N	Percent
P&D. Stage	12	12.0%	18	18.0%	31	31.0%	22	22.0%	17	17.0%	100	100.0%
IMPL. Stage	10	10.0%	6	6.0%	38	38.0%	31	31.0%	15	15.0%	100	100.0%
PCM. Stage	7	7.0%	11	11.0%	14	14.0%	43	43.0%	25	25.0%	100	100.0%
MER Stage	21	21.0%	43	43.0%	19	19.0%	9	9.0%	8	8.0%	100	100.0%
	Combined Average of Management Team Non-Involved in all Stages				*Combined Average of Management Team Involved in all Stages*							

Table 6.9. Combined Percentage of Involvement and not Involvement of Management Team in the Housing Estate Management stages and in practice

	Management Team - Stakeholder			
Indicator	*P&D. Stage*	*IMPL. Stage*	*PCM. Stage*	*MER Stage*
Involvement	70.0%	84.0%	82.0%	36.0%
Non- Involvement	30.0%	16.0%	18.0%	64.0%

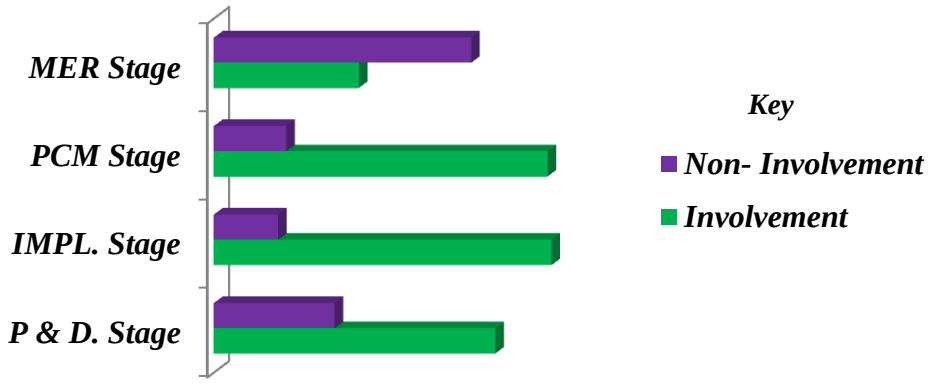

Figure 6.5. Combined Average Percentage of Management Team Involvement and Non-involvement in Social (Public) Housing Estates Management stages and in Practice

Table 6.9 and Figure 6.5 above reveal that the management team involvement in the planning and design was 70.0% involvement as compared to 30.0% non-involvement, while in the implementation stage, it was 84.0% involvement and 16.0% non-involvement and in the post-construction management stage, it was 82.0% involvement as against 18.0% non-involvement. It further reveals in the monitoring, evaluation and reporting stage that the management team was 36.0% involvement and 64.0% non-involvement. Above all, the cumulative combined average percentage findings from Table 6.9 and Figure 6.5 reveal that the management team was 68.0% involvement and 32.0% non-involvement in the efforts to effectively manage and sustain the social (public) housing estates.

It therefore confirms in the research frame that the management team was highly involved in the business cases that should enhance efforts toward the sustainable post-construction management of social (public) housing estate. This is supported by the findings in the previous section that all management activities to the social (public) housing estates are exclusively implemented by the in-house staff employed by either housing authorities in the social housing estate post-construction management for sustainability in the Niger Delta and in Nigeria as a whole.

6.2.3d. Residents/Tenants as a Relevant Stakeholder

Again, this sub-section seeks to assess the level of involvement/inclusion of the residents/tenants as relevant stakeholders in the various stages to the social (public) housing estate effective post-construction management for sustainability.

Table 6.10 indicates that out of 100 respondents in the case of planning and design (P&D) stage, 58.0% (58 Nr) rated them as having no direct involvement/inclusion, while 29.0% (29 Nr) rated them as having negligible involvement/inclusion and 8.0% (8 Nr) rated them as

having limited /involvement/inclusion. Whereas only 2.0% (2 Nr) rated them as having significant involvement/inclusion and 3.0% (3 Nr) rated them as having high involvement/inclusion.

Further, it indicates that at the implementation((IMPL.) stage, they were 26.0% (26 Nr) rated as having no direct involvement/inclusion, while 39.0% (39 Nr) rated them as having negligible involvement/inclusion and 24.0% (24 Nr) rated them as having limited involvement/inclusion. Only 8.0% (8 Nr) rated them as having significant involvement/inclusion and 3.0% (3 Nr) rated them as having high involvement/inclusion.

The tenants/residents in the post-construction management stage were rated 49.0% (49 Nr) as having no direct involvement/inclusion, while 34.0% (34 Nr) rated them as having negligible involvement/inclusion and 12.0% (12 Nr) rated them as having limited involvement/inclusion. But, only 3.0% (3 Nr) rated them as having significant involvement/inclusion and 2.0% (2 Nr) rated them as having high involvement/inclusion.

Finally, the tenants/residents in the monitoring, evaluation and reporting (MER) stage were rated by 73.0% (73 Nr) as having no direct involvement/inclusion, while 17.0% (17 Nr) rated them as having negligible involvement/inclusion and 8.0% (8 Nr) rated them as having limited involvement/inclusion. With none rating tenants/residents as having significant involvement/inclusion and only 2.0% (2 Nr) rated them as having high involvement/inclusion.

Key: *P & D. = Planning and Design Stage; IMPL. = Implementation Stage; PCM = Post-Construction and Management Stage; MER = Monitoring, Evaluation and Reporting Stage.*

Table 6.10. Residents/Tenants Current Involvement Level in Social Housing Estate Management Stages and in Practice

	Residents/Tenants - Stakeholder											
	No Direct Involvement		***Negligible Involvement***		***Limited Involvement***		***Significant Involvement***		***High Involvement***		***Total***	
	N	*Percent*	*N*	*Percent*	*N*	*Percent*	*N*	*Percent*	*N*	*Percent*	*N*	*Percent*
P&D. Stage	58	58.0%	29	29.0%	8	8.0%	2	2.0%	3	3.0%	100	100.0%
IMPL. Stage	26	26.0%	39	39.0%	24	24.0%	8	8.0%	3	3.0%	100	100.0%
PCM. Stage	49	49.0%	34	34.0%	12	12.0%	3	3.0%	2	2.0%	100	100.0%
MER Stage	73	73.0%	17	17.0%	8	8.0%	0	0.0%	2	2.0%	100	100.0%
	Combined Average of Tenants/Residents Non-Involved in all Stages				***Combined Average of Tenants/Residents Involved in all Stages***							

Table 6.11. Combined Percentage of Involvement and Non-involvement of Residents/Tenants in the Housing Estate Management Stages and in Practice

	Residents/Tenants - Stakeholder			
Indicator	*P&D. Stage*	*IMPL. Stage*	*PCM. Stage*	*MER Stage*
Involvement	13.0%	35.0%	17.0%	10.0%
None Involvement	87.0%	65.0%	83.0%	90.0%

Figure 6.6. Combined Average Percentage of Residents/Tenants Involvement and Non-involvement in Social (Public) Housing Estates Management Stages and in Practice

Table 6.11 and Figure 6.6 above indicate that the residents/tenants involvement in the planning and design was 13.0% and 87.0% non-involvement, while in the implementation stage, it was 35.0% involvement and 65.0% non-involvement and in the post-construction management stage, it was 17.0% involvement as against 83.0% non-involvement. It further

shows in the monitoring, evaluation and reporting stage that the residents/tenants were 10.0% involvement and 90.0% non-involvement. Hence, the cumulative combined average percentage findings from Table 6.11 and Figure 6.6 confirm that the residents/tenants had an average 19.0% involvement and 81.0% non-involvement in the efforts to successfully achieve and sustain the social (public) housing estates by either housing authorities.

This confirms in the study circumstance that the residents/tenants were significantly excluded from the activities that would provide the sustainable post-construction management of the social (public) housing estate. This is also supported by the findings in the qualitative findings that the residents/tenants were not included in the activities to manage the social (public) housing estates by either housing authorities in the social housing estate post-construction management for sustainability in the Niger Delta region of Nigeria.

6.2.3e. External Housing Estate Communities as a Relevant Stakeholder

This sub-section of the quantitative questionnaire assesses the level of involvement/inclusion or non-involvement/inclusion of the external housing estate communities as a relevant stakeholder in the various phases in the current management practice of the social (public) housing estate in the Niger Delta region of Nigeria.

Regarding this group in the planning and design (P&D) stage, the results in Table 6.12 reveal a seemingly different position from the other groups as it was 62.0% (62 Nr) rated as having no direct involvement/inclusion, while 25.0% (25 Nr) rated the group as having negligible involvement/inclusion and 4.0% (4 Nr) rated them as having limited involvement/inclusion. Only 4.0% (4 Nr) rated them as having significant involvement/inclusion and the remaining 5.0% (5 Nr) rated them as having high involvement/inclusion.

It is further indicated in the implementation(IMPL.) stage that the group was by 23.0% (23 Nr) rated as having no direct involvement/inclusion, while it was 39.0% (39 Nr) rated as having negligible involvement/inclusion and 24.0% (24 Nr) rated as having limited involvement/inclusion. Only 9.0% (9 Nr) rated them as having significant involvement/inclusion and 5.0% (5) rated them as having high involvement/inclusion.

The post-construction management (PCM) stage was also ostensibly different such that 70.0% (70 Nr) rated this group as having no direct involvement/inclusion, while 22.0% (22 Nr) rated them as having negligible involvement/inclusion and 4.0% (4 Nr) rated them as having limited involvement/inclusion. With only 1.0% (1 Nr) rating them as having significant involvement/inclusion and 3.0% (3 Nr) rated them as having high involvement/inclusion.

In the monitoring, evaluation and reporting (MER) stage, the group was similarly rated as in the other stages. It had 73.0% (73 Nr) of the respondents rating them as having no direct involvement/inclusion, while 18.0% (18 Nr) rated them as having negligible involvement/inclusion and 6.0% (6 Nr) rated them as having limited involvement/inclusion. Only 1.0% (1 Nr) rated them as having significant involvement/inclusion and 2.0% (2 Nr) rated them as having high involvement/inclusion.

Key: ***P & D.*** *= Planning and Design Stage; IMPL. = Implementation Stage; PCM = Post-Construction Management Stage; MER = Monitoring, Evaluation and Reporting Stage.*

Table 6.12. External Housing Estate Communities Current Involvement Level in Social Housing Estate Management Stages and in Practice

	External Housing Estate Communities - Stakeholder											
	No Direct Involvement		***Negligible Involvement***		***Limited Involvement***		***Significant Involvement***		***High Involvement***		***Total***	
	N	***Percent***	***N***	***Percent***	***N***	***Percent***	***N***	***Percent***	***N***	***Percent***	***N***	***Percent***
P&D. Stage	62	62.0%	25	25.0%	4	4.0%	4	4.0%	5	5.0%	100	100.0%
IMPL. Stage	23	23.0%	39	39.0%	24	24.0%	9	9.0%	5	5.0%	100	100.0%
PCM. Stage	70	70.0%	22	22.0%	4	4.0%	1	1.0%	3	3.0%	100	100.0%
MER Stage	73	73.0%	18	18.0%	6	6.0%	1	0.0%	2	2.0%	100	100.0%
	Combined Average of External Housing Estate Communities Non-involved in all Stages				***Combined Average of External Housing Estate Communities Involved in all Stages***							

Table 6.13. Combined Percentage of Involvement and Non-involvement of External Housing Estate Communities in the Housing Estate Management Stages and in Practice

	External Housing Estate Communities - Stakeholder			
Indicator	***P&D. Stage***	***IMPL. Stage***	***PCM. Stage***	***MER Stage***
Involvement	13.0%	38.0%	8.0%	9.0%
None Involvement	87.0%	62.0%	92.0%	91.0%

Figure 6.7. Combined Average Percentage of External Housing Estate Communities Involvement and Non-involvement in Social (Public) Housing Estates Management Stages and in Practice

In Table 6.13 and Figure 6.7 above, it indicates that the external housing estate communities' involvement in the planning and design was 13.0% and 87.0% non-involvement, but in the implementation stage, it was 38.0% involvement as compared to 62.0% non-involvement and in the post-construction management stage, it was 8.0% involvement as against 92.0% non-involvement. It is further shown that in the monitoring, evaluation and reporting stage, the external housing estate communities were 9.0% involvement and 91.0% non-involvement. The cumulative combined average percentage findings from Figure 6.7 confirm that the external housing estate communities had an average 17.0% involvement and 83.0% non-involvement in the efforts to successfully achieve and sustain the social (public) housing estates by either housing authorities.

This confirms that the external housing estate community was significantly excluded from the activities that would provide the sustainable post-construction management of social (public) housing estate. This also agrees with and it is supported by the findings in the qualitative findings were it was indicated by the interviewees that the external housing estate communities are never allowed to participate in the activities to manage the social (public) housing estates by either housing authorities in the Niger Delta region of Nigeria.

However, where the questionnaire further seeks explanation from the respondents of whether the authorities are actively including the stakeholders' participation in the social housing estates post-construction management practice, the results were as represented in Table 6.14 and Figure 6.8 below. The findings show that 44.0% (44 Nr) of the respondents rated active inclusion as being poor, while 27.0% (27 Nr) rated it as being fair and 13.0% (13 Nr) rated it as being satisfactory. Only 16.0% (16 Nr) of the respondents rated it as being good and none (0.0%) rated it as being excellent. It therefore confirms that the active participation in either

authority was 84.0% poor (or fair or satisfactory) as compared to 16.0% that considered the inclusion as good or excellent. This confirms within the research context that an intervention approach is needed to advocate for breaching the gap of marginalisation of these stakeholders in the activities.

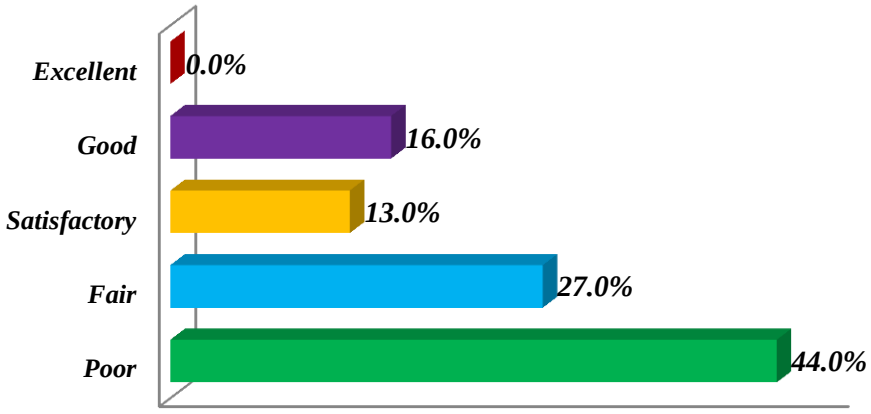

Figure 6.8 Stakeholders Active Participation in Social Housing Estates Post-Construction Management Practice

Above all, the findings in the quantitative questionnaire for this theme as can be seen from Table 6.5; 6.7; 6.9; 6.11; 6.13; and Figure 6.3; 6.4; 6.5; 6.6; 6.7; above confirms in Table 6.14 that the overall average stakeholders' involvement/inclusion in the current social (public) housing estates management practice activities was 20.9% and 55.4% non-involvement/inclusion.

Table 6.14. Combined Stakeholder's Involvement/Non-involvement in the Entire Management Practice of Social (Public) Housing Estate

Stakeholders'	***Combined Stakeholder's Involvement and Non-Involvement in the entire Management Practice of Social (Public) Housing Estates***	
	Involvement	***Non- Involvement***
Government	79.0%	21.0%
Professionals/Contractors	40.0%	60.0%
Management Team	68.0%	32.0%
Residents/Tenants	19.0%	81.0%
External Housing Estate Communities	17.0%	83.0%
Total == (Combined Average %)	***45.0%***	***55. 0%***

Regarding this theme again, most documents from the FHA and SHA did not clarify whether the stakeholders are involved in the identified stages in the post-construction management or not.

However, during interviews, some of the staff in the management teams from the FHA and SHA claimed that they do include the housing estates stakeholders in a particular built environment in the course of managing a fault in an estate while the majority clarified that they do not bother about whether any individual or group called stakeholder could pose a hindrance to performing the required task on the housing estates. This fragmentation from the documents and supported with the interviewees comments indicates a lack of stakeholder involvement in the post-construction management of the housing estates. However, the National Housing Policy (FMLHUD, 2012), the Rivers State Housing and Property Development Act (CAP 67, Law of Rivers State, 2001) and the Nigerian Vision 202: 2020 (2010) clarified that stakeholders involvement and collaboration in any efforts to provide housing estates project development and their post-construction management/maintenance management were incontestable if the social (public) housing estates provided is to be sustainable in the country. For example, the Federal Housing Policy stated thus:

...effective collaboration by all tiers of the Governments... and body comprising of professionals in the industry, eminent citizens, and other relevant stakeholders, should also be put in place... (FMLHUD, 2012, p.78).

This emphasises that stakeholders' involvement/inclusion should not be limited, instead it should be practiced at the highest level or rate in the post-construction management of social (public) housing estates since sustainability was an imperative to the housing deficit sector.

The direct observation made by the researcher in this theme indicates that the rate at which the stakeholders participated in the post-construction management were negligible or not involved. This was confirmed with an observation made at one of the military barrack blocks of flats owned by the federal government and the military officers were relocated to other blocks of flats for maintenance work which had not come to their knowledge beforehand. The question posed by one of the officers as a result was: when did the government take this decision? It therefore reveals that the residents/tenants in this case were not aware of what had being going on in their residents' blocks of flats, such that their involvement would have been sought for and included in the maintenance management works activities. This attitude of ignoring these potential stakeholders in providing services that directly affect them without their awareness and involvement/participation would expectedly undermine the achievements of sustainability in the social (public) housing estates post-construction management if not eradicated in the economy.

The overall findings in this theme, and as contextualised to the research context confirm that the rate of stakeholder involvement/inclusion in the social (public) housing estates post-construction management was low and ineffective, Therefore, if sustainable management of social (public) housing estates were significantly to be attained in the Niger Delta region and in the whole Nigeria social (public) housing estate post-construction management, the housing authorities must change to a proactive method of adequately including the stakeholders at all phases of the post-construction management. It further confirms in this present research domain that there were needs for integration so that a change of perspective, contributions and deliberations in efforts to deliver successful social (public) housing estates post-construction management would be achieved.

6.24. Reasons for Stakeholders Non-Involvement in Social Housing Estates Management Practice

This theme identifies and evaluates the reasons why stakeholders' are not being involved in housing estate post-construction management practice. In the qualitative evidence, all the interviewees revealed and agreed that any person, group or organisation identified as a relevant stakeholder in the social (public) housing estates should be included and /involved in all the management practices to manage the housing estates. However, one of the interviewees from the state housing authority confirmed that the impact of their authority not properly involving the stakeholders has been a huge setback, stating:

> *"…We think this is why most of our own managed housing estates are in a deplorable condition today and issues of increased crime rates, housing property vandalisation and looting infrastructural facilities components in the housing estates are high. And if we can include and/ involve these stakeholders in our management practice activities to the housing estates, this position of the housing estates will change…"*(Transcribed Interviews, 2013)

The professionals/contractors while agreeing with the interviewees from the federal and state housing authority further stated:

> *"…On several occasions, we have been beaten up, denied access to housing estate locations and sites and (suffered) other harassments by tenants/residents and some members of a community. This is particularly when the owner of the housing estates asks us to perform development and post-construction management activities on their housing estates; and for the reason that they (residents/tenants) were not consulted,*

included and involved in the day to day activities of the management practices to the housing estates…"(Transcribed Interviews, 2013)

The interviewees also revealed that identifying and involving the various stakeholders in the day to day management practices of the social (public) housing is vital and relevant if housing estates are to be kept in a good condition and situation. Further, when the researcher tried to query them into identifying the reasons for not involving all of the relevant stakeholders, all the interviewees from both housing authority (Federal and State) commented that it was improper for the authority to expressly declare the processes involved in the award of the contract and the exact amount of the project to these stakeholders'. However, one of the interviewees stated that:

‘‘*...it would be better not to give all information about the project and as you know we are government, we needed to conceal some details*... (Transcribed Interviews, 2013)

In the questionnaire data regarding this theme, certain reasons drawn from the literature and the semi-structured interviewees were asked to the respondents. The results for each of the reasons are as shown in Table 6.18; to 6.23; and Figure 6.10.

The reason of *'not aware of the concept of stakeholder involvement behind the project development and management (CBPDM)'*, Table 6.15 indicates that 1.0% (1 Nr) of the respondents rated it as strongly disagree, while 1.0% (1 Nr) rated it as disagree and 20.0% (20 Nr) rated it as unsure. Whereas, 43.0% (43 Nr) rated it as agree and the other 35.0% (35 Nr) rated it as strongly agree. This reveals that 78.0% of the respondents agreed or strongly agreed to this reason as one amongst the reasons for not involving the stakeholders in the housing estate management practice as compared to 2.0% of the respondents that strongly disagreed or disagreed to it. A significant group of the respondents (20.0%) were unsure how to respond to this reason.

Table 6.15. 'Not Aware of the Concept of Stakeholder Involvement behind the Project Development and Management (CBPDM)

	Frequency	***Percent***
Strongly Disagree	1	1.0 %
Disagree	1	1.0 %
Unsure	20	20.0 %
Agree	43	43.0 %
Strongly Agree	35	35.0 %
Total	***100***	***100.0***

The reason of *"not well-informed about the project and its benefits (WIAPB)* as shown in Table 6.16, only 1.0% (1 Nr) rated it as strongly disagree, while 2.0% (2 Nr) rated it as disagree and 16.0% (16 Nr) rated it as unsure. Whereas 38.0% (38 Nr) rated it as agree and 43.0% (43 Nr) rated it as strongly agree. This confirms here that 81.0% agreed or strongly agreed to this reason and is much greater than 3.0% that strongly disagreed or disagreed to it as a reason of not involving/including the stakeholders. Again, a significant group of the respondents (16.0%) were unsure how to respond to this reason.

Table 6.16. "Not Well-informed about the Project and its Benefits'' (WIAPB)

	Frequency	***Percent***
Strongly Disagree	1	1.0 %
Disagree	2	2.0 %
Unsure	16	16.0 %
Agree	38	38.0 %
Strongly Agree	43	43.0 %
Total	***100***	***100.0***

The reason of *"no access to detailed information contained in the project proposals (ADICPP)''* as presented in Table 6.17 below, only 2.0% (2 Nr) of the respondents rating it as strongly disagree, while another 2.0% (2 Nr) were rating it as disagree and 9.0% (9 Nr) were rating it as unsure. 41.0% (41Nr) were rating it as agreed and 46.0% (46 Nr) were rating it as

strongly agreed. This result confirms that 87.0% agreed or strongly agreed to the reason as compared to 3.0% that strongly disagreed or disagreed to it as a cause of not involving the stakeholders. A smaller group of the respondents (9.0%) were unsure how to respond to this reason.

Table 6.17. "No Access to detailed Information Contained in the Project Proposals (ADICPP)"

	Frequency	***Percent***
Strongly Disagree	2	2.0 %
Disagree	2	2.0 %
Unsure	9	9.0 %
Agree	41	41.0 %
Strongly Agree	46	46.0 %
Total	***100***	***100.0***

The reason of *"not understanding bureaucratic process used in the award of the project contracts (UBPAPC)"*as represented by Table 6.18, indicates that only 1.0% (1 Nr) of the respondents rated it as strongly disagree, while 2.0% (2 Nr) rated it as disagree and 14.0% (14 Nr) rated it as unsure. A further 45.0% (45 Nr) rating it as agree and 38.0% (38 Nr) rating it as strongly agree. This finding reveals that at least 83.0% agreed or strongly agreed to this reason as amongst the reasons of not involving the relevant stakeholders in the management activities as compared to 3.0% that strongly disagreed or disagree to it. While a significant group of the respondents (14.0%) were unsure how to respond to this reason.

Table 6.18. "Not Understanding Bureaucratic Process used in the Award of the Project Contracts (UBPAPC)"

	Frequency	***Percent***
Strongly Disagree	1	1.0 %
Disagree	2	2.0 %
Unsure	14	14.0 %
Agree	45	45.0 %
Strongly Agree	38	38.0 %
Total	***100***	***100.0***

The reasons of *"financial expenditures reduction (FER)"*as shown in Table 6.19 below, was clearly analogous with the other motives as it reveals that only 1.0% (1 Nr) of the respondents rated it as strongly disagree, while 3.0% (3 Nr) rated it as disagree and 16.0% (16 Nr) rated it as unsure. Whereas 42.0% (42 Nr) rated it as agree and 38.0% (38 Nr) rated it as strongly agree. This confirms that 80.0% of the respondents agreed or strongly agreed that this reason was amongst the causes of why the stakeholders are excluded in the management processes as compared to only 4.0% that is strongly disagreeing or disagreeing to this reason. But, a significant number of the respondents were unsure how to respond to this cause.

Table 6.19. "Financial Expenditures Reduction (FER)"

	Frequency	***Percent***
Strongly Disagree	1	1.0 %
Disagree	3	3.0 %
Unsure	16	16.0 %
Agree	42	42.0 %
Strongly Agree	38	38.0 %
Total	***100***	***100.0***

The cumulate average percentage in the questionnaire for this theme as indicated in Table 6.20 confirms that 82% strongly agreed or agreed to these causes as the most relevant and

obvious reasons why either authority have refused to allow the participation of the stakeholders in the social (public) housing estates post-construction management in the Niger Delta region of Nigeria.

Keys/Abbreviations Used for Each Reason Above:

CBPDM = "not aware of the concept behind the project development and management"

WIAPB = "not well-informed about the project and its benefits"

ADICPP = "no access to detailed information contained in the project proposals"

UBPAPC ="not understanding bureaucratic process used in the award of the project contracts"

FER = "financial expenditures reduction"

Table 6.20 Stakeholders Non-Involvement in Social Housing Estates Management Practice

Reasons	Cases											
	Strongly Disagree		Disagree		Unsure		Agree		Strongly Agree		Total	
	N	Percent	N	Percent	N	Percent	N	Percent	N	Percent	N	Percent
CBPDM	1	1.0%	1	1.0%	20	20.0%	43	43.0%	35	35.0%	100	100.0%
WIAPB	1	1.0%	2	2.0%	16	16.0%	38	38.0%	43	43.0%	100	100.0%
ADICPP	2	2.0%	2	2.0%	9	9.0%	41	41.0%	46	46.0%	100	100.0%
UBPAPC	1	1.0%	2	2.0%	14	14.0%	45	45.0%	38	38.0%	100	100.0%
FER	1	1.0%	3	3.0%	16	16.0%	42	42.0%	38	38.0%	100	100.0%
	Combined Cumulative Percent of Strongly Disagree (18.0%)						*Combined Cumulative Percent of Strongly Agree (82.0%)*					

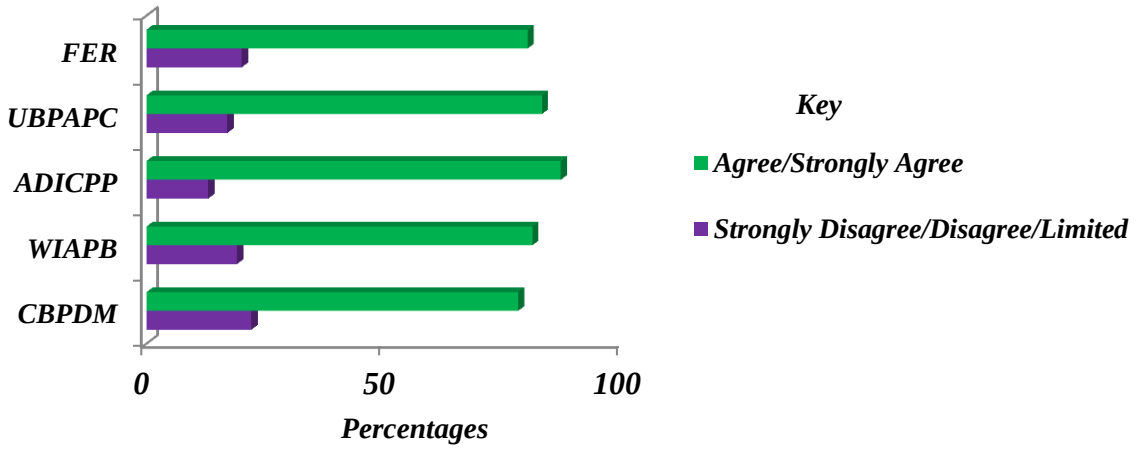

Figure 6.9. Stakeholders Non-Involvement in Social Housing Estates Management Practice

The documentary evidence in this theme confirms a lack of effective stakeholder involvement in the social (public) housing estates post-construction management. For example, the National Housing Policy (FMLHUD, 2012) clarified that effective housing estate provision and post-construction management involves many actors and therefore requires effective partnership collaboration and information sharing. However, the significant shortfall in this area has been attributed to the inadequacy of a proper housing policy supporting stakeholders' inclusion/involvement. The reasons why the stakeholders were not being involved in the housing management activities were out of sight in the document (FMLHUD, 2012) and it would have been expected that since the document was emanating from the government, it would have been possible to have stated the reasons than to clamour for stakeholder participation in housing provision and post-construction management practice. This, either housing authorities do not adhere to in the management practice of the social (public) housing estate.

The researcher direct observation in this theme reveals that all the members of the management and maintenance teams in both housing authority are in-house staff deployed to work in the housing estate department of the authorities. The direct observations further clarify that it is only this in-house staff that are carrying out the repairs and other management tasks in all the government owned housing estates. It therefore confirms in the research context that other stakeholders' such as including the professional/contractors, tenants/residents and the external estate community groups were not participating/and or included in the post-construction management activities of the housing estates. This creates the concerned gap that expects recommendations for mitigation in this present research if sustainability of the housing estates is imperative to ameliorating the shortages or deficits in social (public) housing estates stocks in the Niger Delta region.

The overall findings through the triangulation of the four sources of evidence in this theme and in the research domain confirm and support the research objectives and sub-objectives that there exists exclusion of the relevant stakeholders in the current post-construction management of social (public) housing estates. Further, it supports the research anticipation that a change was required in the circumstances by integrating these relevant stakeholders into the post-construction management activities for effective management of the social (public) housing estate for sustainability by either housing authority in the Niger Delta region of Nigeria.

6.2.5. Assessing Stakeholders Impact in Social Housing Estates Management Practice

This theme aims to evaluate the impacts of stakeholders in the efforts to provide a successful post-construction management of the social (public) housing estates and where they are excluded in the entire business case. Concerning the semi-structured interviews, all the interviewees commented that excluding the stakeholders in the activities to enhance housing estate sustainability would definitely have severe detrimental effects in achieving the purpose. Further, the interviewees (16 Nr = 100%) stated that most times that the stakeholders were not involved, the jobs hardly get completed. They continue to cause challenges to existing housing estate premises so that the management teams cannot perform the required task. However, one of the interviewees from the external estate community stated:

> *''...unless we are included, we will continue to disrupt the work and they would continue to waste their material resources in the site...* (Transcribed Interviews, 2013)

The questionnaire survey in this theme, the analysed data and results shown in Table 6.21 indicate that for the impact of the governments (***GOVT Impacts***) as a relevant stakeholders, it was 2.0% (2 Nr) rated as being no direct impact, while another 2.0% (2 Nr) rated their impact as being negligible and 6.0% (6 Nr) rated their impact as being limited. Whereas 34.0% (34 Nr) rated their impact as being significant and 56.0% (56 Nr) rated their impact as being high. This shows that government activities as a relevant stakeholder in the efforts to provide sustainable social (public) housing estates post-construction management would have at least 90.0% high or significant influence on the effectiveness of implementing any approach for housing estates management sustainability as compared to 10.0% of negligible (or no direct or limited) influences.

Table 6.21. Government as a Relevant Stakeholder - Impact

	Frequency	***Percent***
No Direct Impacts	2	2.0 %
Negligible Impacts	2	2.0 %
Limited Impacts	6	6.0 %
Significant Impacts	34	34.0 %
High Impacts	56	56.0 %
Total	***100***	***100.0***

The professionals/contractors (***PROCONT Impacts***) as indicates in Table 6.22 below had their impacts seemingly similar to that of the government with only 3.0% (3 Nr) of the respondents rating as being no direct impact, while another 3.0% (3 Nr) rated their impact as being negligible and 6.0% (6 Nr) rated their impact as being limited. Further, 42.0% (42 Nr) rated their impact as being significant and 46.0% (46 Nr) rated their impact as being high. The findings confirm that professionals/contractors would have at least 88.0% high or significant impact in either supporting or detracting from the effective and sufficient implementation of the actions for sustainable management of social (public) housing estates as compared to 12.0% that thought they would have no direct sway.

Table 6.22. Professionals/Contractors as a Relevant Stakeholder - Impact

	Frequency	***Percent***
No Direct Impacts	3	3.0 %
Negligible Impacts	3	3.0 %
Limited Impacts	6	6.0 %
Significant Impacts	42	42.0 %
High Impacts	46	46.0 %
Total	***100***	***100.0***

The management teams/decision-makers (***MGTT/DM Impacts***) as a relevant stakeholder, and as it regards to their impacts (Table 6.23 below), it was only 3.0% (3 Nr) of the respondents that were rating as being no direct impact, while 4.0% (4 Nr) were rating their impact as being negligible and 4.0% (4.0 Nr) rated their impact as being limited. 40.0% (40 Nr) rated their impact as being significant and the remaining 49.0% (49 Nr) rated their impact as being high. This confirms that the management teams/decision-makers have at least 89.0% significant or high impact in supporting and sustaining social (public) housing estates post-construction management for its sustainability in the region (Niger Delta, Nigeria).

Table 6.23. Management Teams/Decision-Makers as a Relevant Stakeholder – Impact

	Frequency	***Percent***
No Direct Impacts	3	3.0 %
Negligible Impacts	4	4.0 %
Limited Impacts	4	4.0 %
Significant Impacts	40	40.0 %
High Impacts	49	49.0 %
Total	***100***	***100.0***

The residents/tenants (***RESID/TENT Impacts***) as a relevant stakeholder and as it is presented in Table 6.24, indicates 1.0% (1 Nr) of the respondents rating their impact as being no direct impact, while 4.0% (4 Nr) rating their impact as being negligible and 7.0% (7 Nr) rating their impact as being limited. Whereas 39.0% (39Nr) of the respondents rating their impact as being significant and 49.0% (49 Nr) rated their impact as being high. The results reveal and verify that the residents/tenants would typically have at least 88.0% significant or high impact (positive or negative) to sustain and/or affect the various activity tasks for the sustainable management of social (public) housing estates. This is greater than 12.0% of no direct or negligible (or limited) impact to the activities success.

Table 6.24. Residents/Tenants as a Relevant Stakeholder – Impact

	Frequency	***Percent***
No Direct Impacts	1	1.0 %
Negligible Impacts	4	4.0 %
Limited Impacts	7	7.0 %
Significant Impacts	39	39.0 %
High Impacts	43	49.0 %
Total	***100***	***100.0***

The external housing estate communities (EHEC) as a relevant stakeholder (Table 6.25 below), their impact was 4.0% (4 Nr) rated as being no direct impact, while 8.0% (8 Nr) rated their impact as being negligible and 16.0% (16 Nr) rated their impact as being limited. Further 35.0% (35 Nr) rated their impact as being significant and 37.0% (37 Nr) rated their impact as being high. The finding here verifies that the external housing estate communities would have at least 72.0% significant or high impact (either for or against) to the task required to be performed for sustainable management of social (public) housing estates after their provisions.

Table 6.25. External Housing Estate Communities as a Relevant Stakeholder - Impact

	Frequency	***Percent***
No Direct Impacts	9	9.0
Negligible Impacts	6	6.0
Limited Impacts	12	12.0
Significant Impacts	30	30.0
High Impacts	43	43.0
Total	***100***	***100.0***

However, in the combined impacts of the relevant stakeholders in the entire post-construction management activities to social (public) housing estate management practice, a cumulative frequency chart was computed as shown in Table 6. 26. This approach was further deployed and computed the cumulative impact and its corresponding percentage as presented in Table 6.27. This was to allow the present research to verify whether their cumulative impacts were high (positive or negative) enough to determine or strongly influence the fortunes of the housing estates after construction in its sustainability perspective. Also, to allow the ranking of the stakeholders, and this should help to suggest the stakeholder with the highest influence in the efforts to sustainably manage the social (public) housing estates. In Table 6.27, the lower cumulative impacts represents the combined cumulative impacts of no direct impact and negligible impact while the high cumulative impacts represents the combined cumulatives of significant impact and high impact as rated of the stakeholders by the respondents and as collated from Table 6.21. The findings from the Tables (6.26; 6.27 and Figure 6.11) indicate that the government (*GOVT*) had a cumulative impacts of 1.44 (90.0%) and was ranked 1st amongst the relevant stakeholders with significant or high impact to influence the sustainable

management of social (public) housing estates. The management teams/decision (*MGT/DM*) maker had a cumulative frequency impacts of 1.51(89.0%), ranked 2nd as a relevant stakeholder having a significant or high impact. The tenants/residents (*TENT/RES*) stakeholder group, had a cumulative impact of 1.51 (88.0%), ranking 3rd amongst the stakeholders' with significant or high impact. The professionals/contractors (*PROCONT*) had a cumulative frequency impacts of 1.54 (88.0%) and was ranked 4th amongst the relevant stakeholders with significant or high influences. Finally, the external housing estate communities (*EHEC*) group had a cumulative frequency impacts of 1.63 (72.0%), ranking 5th amongst the relevant stakeholder groups having high or significant impacts.

However, it further verifies that the government as a relevant stakeholder is most influential in determining the fortune of social (public) housing estates sustainability, and it's also supported by their ownership rights and possession of the housing estates confirmed in the previous section of this work. But, that does not mean that the other relevant stakeholder groups' influences should be undermined in this scenario and in the frame of this research rather it should be incorporated.

Keys/Abbreviations used for Stakeholders above:

Govt. Impacts = Government Impacts;

PROCONT = Professionals/Contractors Impacts;

MGTT/DM Impacts = Management Team/Decision-Makers Impacts;

RESID/TENT Impacts = Residents/Tenants Impacts;

EHEC Impacts = External Housing Estate Communities Impacts.

Table 6.26. Assessing of Stakeholders Impacts in Social Housing Estates Management Practice

	Key				
Cumulative Frequency of Group Category (Cumf)	***No Direct Impact***	***Negligible Impact***	***Limited Impact***	***Significant Impact***	***High Impact***
GOVT Impacts	0.02	0.04	0.10	0.44	1.00
PROCONT Impacts	0.03	0.06	0.12	0.54	1.00
MGTT/DM Impacts	0.03	0.07	0.11	0.51	1.00
RESID/TENT Impacts	0.01	0.05	0.12	0.51	1.00
EHEC Impacts	0.04	0.12	0.28	0.63	1.00
	Low Cumf Impacts (Combined)			High Cumf Impacts (Combined)	

Table 6.27. Stakeholders Impacts Ranked Based on Cumulative Frequency of Groups Category

Group Category	***Low Cumulative Impacts (A)***		***High Cumulative Impacts (B)***		***Ranking based on Cum f of B***
	Cum f	***Cum %***	***Cum f***	***Cum %***	
GOVT Impacts	**0.06**	**6.0%**	**1.44**	**90.0%**	**1st**
MGT/DM Impacts	**0.10**	**7.0%**	**1.51**	**89.0%**	**2nd**
TENT/RES Impacts	**0.06**	**5.0%**	**1.51**	**88.0%**	**3rd**
PROCONT Impacts	**0.09**	**6.0%**	**1.54**	**88.0%**	**4th**
EHEC Impacts	**0.16**	**12.0%**	**1.63**	**72.0%**	**5th**

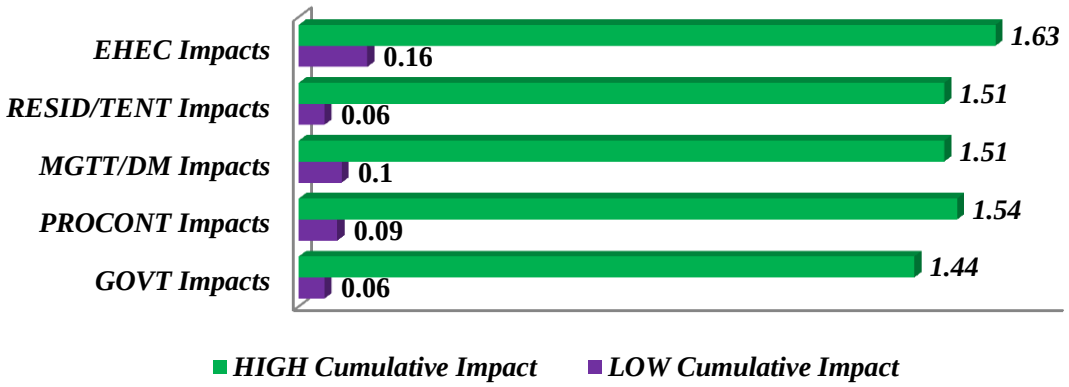

Figure 6.10. Assessing Stakeholders Impacts in Social Housing Estates Management Practice

The few documentary sources of evidence clarified that one of the many stakeholder impacts is the witch-hunting attitude rendered toward promoting an increasing efficiency, equity and harmony in the housing estate provision and post-construction management (FMLHUD, 2012). It also creates a non- self-reliance situation to the stakeholders and a lack of awareness of the issues, thereby facilitating a more un-equitable trade-off between the stakeholders and their competing interests. Further, the stakeholders' lack of involvement detracts in promoting any decisions that enjoy a greater degree of consensus and shared ownership in the housing estate sustainability (FMLHUD, 2012). However, Bramwell and Lane (1993) as cited in Medeiros de Araujo and Bramwell (1999) contend that it may be often difficult and time-consuming to involve all stakeholders in the processes of project development and post-construction management. But, where all the differing interest stakeholders are involved, it would have momentous benefits for sustainability. For example, by inspiring more deliberations of the diverse social, cultural, environmental, economic and political issues touching project sustenance.

The direct observation in this theme clarifies that several conflicts, fights, crimes and disruptions of housing estate development and post-construction management activities between the differing interest stakeholders exist. For example, housing estates provided to house the low-income groups in a particular area were left not completed, un-allocated and un-managed because of the conflict and fights by certain stakeholders on the issue of land ownership and leadership change. This prompted some persons within these groups of stakeholders to start raiding the properties, fixtures and amenities found in and within the housing estate units. The consequence of this is that people become scared to even live in such housing estate units even where it has been allocated.

This theme overall findings reveals in the research context that a lack of stakeholder involvement would have harsher impacts either positive or negative (or both) in all the efforts for the social (housing) estates to be managed in a sustainable manner which should provide for sustainability of social (housing) estate units in the Niger Delta region. However, the anticipated impacts in the research circumstance should be that of positive contributions if sustainability of the social (public) housing estate was to be maintained.

6.2.6. Relevance of Stakeholder Integration in Social Housing Estates Management Practice

This theme in this research section assessed how important and relevant integrating the stakeholders', was, and at the same time including or involving them in all the processes or activities that would provide the sustainable management of the social (public) housing estates in the Niger Delta region of Nigeria. In the qualitative semi-structured interviews, all the interviewees (16 Nr = 100%) commented by acknowledging that integrating the relevant stakeholders to social (public) housing estate into any framework that would be expected to be applied for the sustainable management of social (public) housing estates after construction is imperative. The interviewees (total 16 Nr) further emphasised that such should be advocated for all the housing authorities and agencies affiliated to providing the services. For example, an interviewee stated thus:

> *''...so far as we are concerned and for the purpose of ensuring that the government housing estates that we partake in the management and maintenance, all the stakeholders particularly those that live in the houses and those from the immediate community must be underrated but seriously integrated...''*, and *''...use myself and one of my colleagues as example of when we were denied entering into the Iriebe housing estates being developed by the state government on the singular fact that they (community) were not informed and also allowed to be involved in the housing estates development and management...''* (Transcribed Interviews, 2013)

The quantitative questionnaire analysis and results for this theme is as presented in Figure 6.12. The results indicate that out of the 100 respondents that participated in this theme, it was 9.0% (9 Nr) of the respondents that rated their importance and/ relevance to be of no direct relevance/importance. While, only 6.0% (6 Nr) rated the relevant stakeholder's involvement and integration to be of negligible relevance/importance and a further 12.0% (12 Nr) rated the relevant stakeholder's integration to be of limited relevance/importance. Whereas 30.0% (30

Nr) rated the relevant stakeholders involvement and/or integration to be significant and 43.0% (43 Nr) rated their involvement/integration to be of high relevance/importance.

The findings in general reveal that the relevance and/or importance of the relevant stakeholders integration into the strategies and the expected framework that should be used by housing authorities in social (public) housing estate post-construction management practice for sustainability was at least 73.0% significant or highly relevant and/or important as compared to 27.0% of no direct or negligible (or limited) relevance and/or importance. This confirms in the study that the relevant stakeholders' involvement and integration in the sustainable management of social (public) housing estates expected framework is highly relevant and important for social (public) housing estate sustainability.

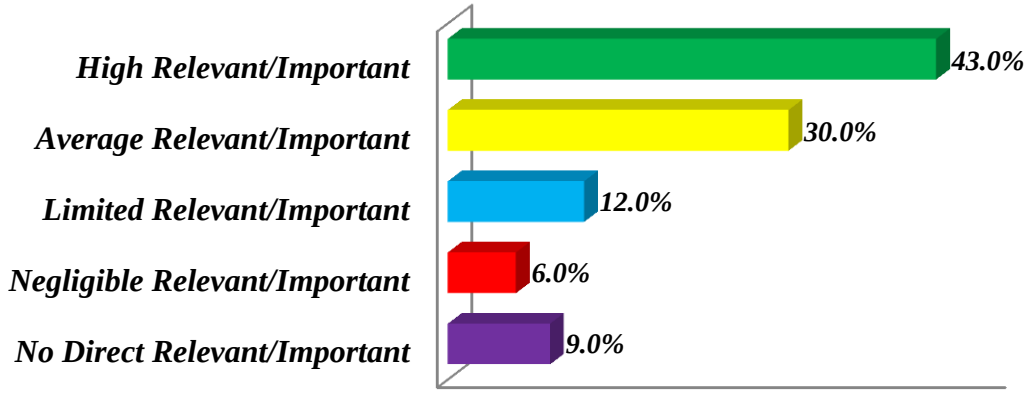

Figure 6.11. Relevance of Stakeholders' Integration in Social (Public) Housing Estate Management Practice

Most analysed documents in this theme verify and acknowledge that bringing the relevant stakeholders' into the housing estate provision sector is a welcome philosophy towards achieving sustainability, and also to other projects development. For instance, the FMLHUD (2012) document provides that for effective housing estates delivery and post-construction management, there should be a constituted committee, of all relevant professionals and stakeholders to the housing sector to monitor and appraise the performance of the housing estates stock, created for proper accountability. This indicates that the stakeholder's to the housing estates are fundamental contributors in effective delivery and post-construction management of housing estates. Further, if the UN-HABITAT agenda 21 (as in chapter 7 of it), as well as the Nigerian Nation's Vision 20:2020 (NNV 20:2020, 2010) on human development aspiration was also to be achieved and sustained. However, most documents from the FHA and SHA shows a persisting lack in this theme of implementing the integration of the housing estates stakeholders into their post-construction management of the estates

after construction. However, the findings generally reveal that stakeholder's participation is relevant and/or important in any progression aimed to increase housing estates delivery, as well as, sustain the housing estates stocks that are delivered.

Direct observation in this theme was limited. However, a direct observation carried out by the researcher in a public company that assisted project developments and post-construction management, clarified that the successful sustenance of the development was based on the premise that the relevant stakeholders to the project were at the early phase of the development consulted and involved in the entire development process. This relevant stakeholder was at the end of the development charged with the responsibilities for the post-construction management sustainability for that development through partnership. This confirms in the research circumstance and conceptualisation that despite other conditions that the relevant stakeholders' integration in any project development and post-construction was significant.

The overall findings of this theme confirm that the importance and/or relevance of the stakeholders' participation, contribution and integration was necessary and it should support the development of the framework that should be used to sustainably manage the social (public) housing estates in the Niger Delta region of Nigeria.

6.3. TEST OF SIGNIFICANCE

This theme seeks to establish whether there is a relationship between the currently used estate management approaches; maintenance management methods; and with the relevant stakeholders involvement and relevance/importance; in efforts to sustainably manage the social (public) housing estate. It also helped to verify the strength of the correlation and the association effect size. These were utilised to substantiate if that correlation was persuasive in social housing estates conditions verified (in the previous section) of this research study. However, the entire exercise was to confirm if the relevant stakeholders' involvement was significant in the procedures that should improve the sustainability of social (public) housing estates after their provision in the Niger Delta areas of Nigeria. Subsequently, to the findings and as supporting the aims of this section, a Pairwise Analysis of Variables was conducted as shown in Table 6.28.

Table 6.28. Pairwise Analysis of Stakeholders Involvement; Estate Management Approaches; and Maintenance Methods

Variable	***rho***	***Estate Management Approaches***	***Maintenance Methods***
Stakeholders Involvement	Correlation Coefficient	0.202	0.348
	Sig. (2tail)	0.044	0.000
	N	100	100

Table 6.28 as determined from the Spearman's correlation coefficient ranges presented earlier in Table 4.4 (Chapter Five of this research), reveal that there was a weak positive correlation/association between the relevant stakeholders involvement and relevance (and/or importance) and estate management approaches, *rho = 0.202, n = 100, sig. /p ≤ 0.044*, with lower levels of the relevant stakeholders involvement and relevance (and/or importance) being associated with the less effective estate management approaches adopted in the current management of social (public) housing estates. Further, the findings reveal that there was also a weak positive association between the level of the relevant stakeholders involvement and relevance (and/or importance) and the maintenance management methods, *rho = 0.348, n = 100, sig. /p = ≤ 0.000,* with lower levels of the relevant stakeholders involvement and relevance (and/or importance) being associated with the maintenance management method adopted in the current management of the social (public) housing estates.

The findings confirm that the relevant stakeholders' involvement and relevance (and/or importance); the estate management approach; and the maintenance management method; utilised in the current efforts by either housing authorities to manage the social (public) housing estate was feebly insufficient and ineffective to promote social (public) housing estate sustainability. It is expected in this research frame that the agreement of: the relevant stakeholders' involvement and relevance (and/or importance); together with the appropriate estate management method; and the maintenance management type; should be considerably stronger if a change that promotes sustainability in social housing estates is to be achieved. However, the unpredicted feeble associations between these themes cannot be clarified within the research data in this chapter, but should benefit from further investigation, and this is referred to in the final chapter of this present study.

6.4. SUMMARY OF FINDINGS/CHAPTER

This chapter has established, through the amalgamation of four sources of data, reinforced with literature corroborations: the current awareness; rate and importance/relevance of stakeholders' involvements/inclusions; in social (public) housing estates post-construction management practice for sustainability in the Niger Delta region of Nigeria. The chapter data analysis, findings, and in the research context, has also confirmed the following:

- That, the relevant stakeholders' to the social (public) housing estate was the government (owner), the professionals/contractors, the post-construction management teams, the tenants/residents and the external housing estate communities (*Refer to Figure 6.1, page 215*);
- That, the awareness of the respondents of the relevant stakeholders' involvement in the post-construction management of social (public) housing estates for sustainability was completely feeble (*Refer to Table 6.5 and Figure 6.2, page 222 and 217*);
- That, the rate at which the relevant stakeholders' are included and/or involved in the entire post-construction management process was very low and ineffective (*Refer to Table 6.4; ……; 6.14 and Figure 6.3; ….. 6.8; pages 221 - 233*);
- That, five critical reasons was predominant to the non-involvement and/or inclusion of the relevant stakeholders' (*Refer to Table 6.15;.....; 6.20 and Figure 6.9, pages 237 - 240*);
- That, the impacts of the relevant stakeholders' non-involvement should have a hasher consequence in detracting any efforts deployed by either authority to sustainably manage the housing estate once provided (*Refer to Table 6.21;.....;6.27 and Figure 6.10, page 242-247 and 248*);
- That, the relevant stakeholders' involvement/inclusion and relevance (and/or importance) in the activities to provide the post-construction management of social (public) housing estates for sustainability was undisputable, and supports their integration in the likely framework formulation (*Refer to Figure 6.11, page 250*);
- That, the correlations' between: the relevant stakeholders' involvement and relevance (and/or importance); current the estate management approach and the maintenance management method utilised in the efforts by either housing authorities to manage the social (public) housing estates was feebly insufficient and ineffective. It was expected that the associations of these themes should have been considerably stronger if sustainability of the social (public) housing estate after provisions was to be achieved in the Niger Delta of Nigeria (*Refer to Table 6.28, page 252*).

However, the next chapter of this research study reflects on the essential and beneficial sustainability factors/issues conceptualised in this research to sustaining social (public) housing estates, and which stood as the third objective of the research.

CHAPTER 7: BENEFICIAL SUSTAINABILITY FACTORS IN SOCIAL HOUSING ESTATES POST-CONSTRUCTION MANAGEMENT PRACTICE IN THE NIGER DELTA (RESEARCH OBJECTIVE 4)

7.1. INTRODUCTION

This chapter addresses objective four of this research which conceptualises sustainability in the context of social (public) housing estates post-construction management and identifies those beneficial sustainability factors for the sustainability of social housing in the Niger Delta region of Nigeria. This chapter presents data analysis and discussion of each finding, as well as triangulating confirmations provided in the review of the body of knowledge section (Chapter Three). The analysed data as earlier stated in the preceding sections (Chapters Five and Six) were gathered through utilising semi-structured interviews (16 Nr), questionnaire survey (100 responses), document and direct observation techniques. The findings emerged through triangulation, supporting the development of a framework that would be used in delivering sustainability of social (public) housing estates post-construction management in the Niger Delta region of Nigeria.

Further, the main sub-objectives of this present chapter are as follows:

- To assess the awareness and pace of understanding by housing estates management practitioners in sustainability concepts, and in relation to social (public) housing estates post-construction management;
- To identify and assess sustainability beneficial factors and their effect/impact in social (public) housing estates post-construction management;
- To assess the relevance of sustainability and its essential factors integration into the management of social (public) housing estates for sustainability;
- To assess any existing framework and the need/importance of sustainability factors, stakeholders' involvement, and appropriate maintenance management methods and estate management approach integration in social (public) housing estates for sustainability in the Niger Delta and as may be applicable to the whole of Nigeria and developing countries.

Table 7.1 Research Objectives and Investigating Questions in Each Instrument

	Main Research Objectives	***Interview Questions***	***Questionnaire Questions***
1	Conceptualise sustainability in the context of social (public) housing estates post-construction management and identify those beneficial sustainability factors for their sustainability in the Niger Delta region of Nigeria.	*AQ1; AQ2; AQ3; AQ4; AQ5; DQ1; DQ2; DQ3; DQ4; DQ5; DQ6; DQ7 and DQ8.*	*AQ1; AQ2; AQ3;AQ4; AQ5; CQ1; DQ22; DQ23; DQ24; DQ25; DQ26; DQ27; and DQ28.*

This section utilised the same techniques and instruments as stated in preceding sections (Chapters Five and Six) of this present research study in the analysed data and results. These includes: NviVo packages for semi-structured interviews; SPSS packages for questionnaire responses; iterative pattern coding and content analysis tools for documentation, observation and including semi-structured interview in the analysed data and conclusions.

7.2. ANALYSIS, RESULTS AND DISCUSSION BASED ON TRIANGULATION

Analysing generated data about a topic under investigation is a difficult task in the research process (Yin, 2009), but, it is a necessity in research work which helps to prove the consistency and reliability of the research findings and conclusions (Saunders *et.al*., 2009) such as in this present study. It was opined that the first step in an effort to analyse gathered data was to test for data consistency and reliability which in this section was utilised even though result variations depend on the sample size (Davis, 2013; Pallant, 2013). The process assisted to elicit whether all the data in the questionnaire and interviews were consistent and evaluates the same underlying construct (Davis, 2013; Pallant, 2013; 2007). Table 7.2 shows the analysed data and presents the test of reliability utilising the same value ranges as provided in Table 5.4 of Chapter Five, page 178.

Table 7.2. Reliability Test

Cronbach's Alpha	***Numbers of Items***
0.748	**14**

Utilising the reliability test as shown for Table 7.1 for all the items, shows that the Likert scale used in data collection in this section had an acceptable internal consistency and reliability with Cronbach's alpha coefficient 0.748 for 14 items. This confirms that the data

collected in this section was reliable, consistent, and consequently was used to advance the analysis in this chapter of this study.

A normality test of all the data gathered from the questions in this chapter was completed as shown in Table 7.3. The results show a Kolmogorov-Smirnov statistic non-significant value of 0.000 for all 14 items as compared to a significance value of ≥ 0.05 for normally distributed data (Pallant, 2013). This authenticates that the data was not normally distributed, and which then required the data to be tested for significance using the non-parametric tool of Spearman's correlation coefficient (Pallant, 2013; 2007; Creswell and Plano Clark; 2011; Saunders, *et. al.,* 2009). The Spearman's correlation coefficient test of significance is interpreted by utilising the range of values provided in Table 5.4 of the preceding section (Chapter Five, page 165) in decisions on the potency of variables relationships in this study section.

Table 7.3. Test of Normality

Items/Variables/Cases	***Kolmogorov-Smirnov[a]***			***Shapiro-Wilk***		
	Statistic	***df***	***Sig.***	***Statistic***	***df***	***Sig.***
Sustainability Awareness	.256	100	.00	.829	100	.000
Sustainability Awareness Level/Rate	.180	100	.00	.910	100	.000
Sustainability Importance/Relevance	.280	100	.00	.848	100	.000
Policy Factor Effect on Sustainability	.277	100	.00	.771	100	.000
Management Structure Factor Effect	.262	100	.00	.856	100	.000
Technology Factor Effect	.241	100	.00	.861	100	.000
Community Social Perception Factor Effect	.220	100	.00	.880	100	.000
Economic/Finance Factor Effect	.292	100	.00	.760	100	.000
Environment Factor Effect	.211	100	.00	.878	100	.000
Monitoring, Evaluation and Reporting Factor	.310	100	.00	.758	100	.000
Sustainability Factors Integration	.207	100	.00	.857	100	.000
Sustainability Factors Needs in SSPHEM	.373	100	.00	.668	100	.000
Existing Framework Awareness	.404	100	.00	.638	100	.000
Framework Needed in SSPHEM	.407	100	.00	.644	100	.000

a. Lilliefors Significance Correction

In this chapter of the research, the following themes of: sustainability awareness; sustainability understanding; essential and beneficial sustainability factors; the factors effects and relevance; the factors current utilisation; and their need for integration; in social housing estates post-construction management was investigated, and the results/findings are discussed as follows:

7.2.1. Sustainability Awareness and Understanding in the Social Housing Estates Management Practice

This theme seeks to examine the awareness of the concept of sustainability and its assumed prevalent beneficial factors in social housing estates post-construction management. Regarding the qualitative semi-structured inquiry, all the interviewees from the FHA, SHA and the professionals/contractors (total 12 Nr) remarked as being aware of and having an understanding of sustainability and the issues in a general perspective. In this thesis, it is a contention that within social (public) housing estate post-construction management, it is context specific.

The professionals/contractors and Federal and State housing authorities interviewees (12 Nr) commented further by inferring the point from the Bruntland report definition and Agenda 21 (UNSD, 1992). The Bruntland report emphasises that all development must be that which meets the needs of the present generation without endangering the ability of the future generations to meet their own needs. Agenda 21(chapter 7) stressed that there were needs in promoting sustainable human settlement development (UNSD, 1992). The objectives being to achieve sufficient housing for speedily rising populations and for the now disadvantaged urban and rural poor through an enabling approach to shelter development, improvement and management that should be economically, socially, politically and environmentally sound in a country (UNSD, 1992).

Further, the interviewees from tenants/residents and the external housing estates community group (total 4 Nr) acknowledged having some knowledge of sustainability, but how this concept works and achieves the intent was difficult to understand on their part. At the same time, these interviewees (total 4 Nr) stated that whether the government housing estate management teams considered the use of this concept in the housing estate post-construction management was unknown to them.

From the questionnaire responses, Table 7.4 show the results of 100 respondents out of which 19.0% (19 Nr) were rated as having no awareness, while 29.0% (29 Nr) were rated as having a negligible awareness and 17.0% (17 Nr) were rated as having a limited awareness. Another

8.0% (8 Nr) were rated as having an adequate awareness and the remaining 27.0% (27 Nr) were rated as having a high awareness. The findings reveal that the level of awareness of sustainability concepts and its antecedent factors in the overall combinations was stated by at least 65.0% of the respondents as having no or negligible (or limited) awareness as compared to 35.0% rated as having an adequate or high awareness.

Table 7.4 Sustainability Awareness in the Social Housing Estates Management Practice

	Frequency	***Percent***
No Awareness	19	19.0
Negligible Awareness	29	29.0
Limited awareness	17	17.0
Adequate Awareness	8	8.0
High Awareness	27	27.0
Total	***100***	***100.0***

However, in a further effort to investigate the level of understanding of sustainability concepts in the specific context of the management of social (public) housing estates, Table 7.5 results reveal that out of the 100 responses in the survey, 13.0% (13 Nr) were rated as having a poor level of understanding, whereas 34.0% (34 Nr) were rated as having a fair level of understanding and 24.0% (24 Nr) were rated as having a satisfactory level of understanding. 20.0% (20 Nr) were rated as having a good level of understanding and only 9.0% (9 Nr) were rated as having an excellent level of understanding.

This finding in the level of understanding of the sustainability concept and its beneficial factors to housing authorities in the specific context of post-construction management of social (public) housing estates confirms that at least 71.0% rate it as being a poor or fair (or satisfactory) level of understanding as compared to 29.0% of a good or excellent level of understanding of sustainability concepts.

Table 7.5 Sustainability Understanding Level in the Social Housing Estates Management Practice

	Frequency	***Percent***
Poor Understanding	13	13.0
Fair Understanding	34	34.0
Satisfactory Understanding	24	24.0
Good Understanding	20	20.0
Excellent Understanding	9	9.0
Total	***100***	***100.0***

The documentary evidence in this theme clarified that the awareness and understanding of sustainability is bound to the social, political, economic and environment state of affairs of a nation. This is particular to all actors involved in promoting the welfare of their citizens, such as for social (public) housing estate provision and post-construction management (NHP, 2011; UNSD, 1992). Additionally, the NHP (2012, p.61) confirmed this by stating:

> *"... to ensure the sustainable post-construction management of all physical assets and infrastructure, a structured manpower development programme for post-construction management work is ..."[is required]*.
>
> (FMLHUD, 2012, p. 61)

The direct observations in this theme by the researcher, also clarified that the awareness of the word "sustainability" by the social (public) housing estate post-construction management team exists in the housing authorities and also within the professionals/contractors. However, this awareness was not directly associated to the understanding of what this concept was proclaimed to be providing in the built environment as observed by the researcher. It should be difficult to accept awareness of something without understanding the goal, objectives and how to achieve such in an endeavour with which the actors are charged with the responsibility for. This is the case of social (public) housing estate post-construction management for sustainability in the Niger Delta region of Nigeria.

The overall findings in this theme reveal that at the moment, the level of awareness and understanding of those in the practice to manage the post-construction activities of the social (public) housing estates are insufficient. These findings within the research context is expected to be a significant feature leading to the failure of the current practices and conditions of the social (public) housing estates in the Niger Delta region.

By generalising the findings, it is proposed that this is also a significant feature leading to the failure of social (public) housing estates in other regions of Nigeria, and other developing nations.

7.2.2. Sustainability Considerations and the Relevance in Social Housing Estates Management Practice

This theme aims to ascertain the relevance and consideration of sustainability in effectively providing post-construction management of social (public) housing estates in practice.

Regarding this concern, all the interviewees (total 16 Nr) revealed that sustainability in the management of the social (public) housing estates was relevant/important and would be enhanced where proper implementation of a monitoring, evaluation and reporting strategy is followed. They further specified that apart from monitoring, evaluation and reporting, issues such as: social perceptions of the community; the housing estate environment; financial/economic factors; the housing estates management structure; the policy underlining the housing estate provision and post-management; and the technology appropriateness; are considered to be significant issues.

All the interviewees (16 Nr) confirmed that these factors/issues despite being important or essential to sustainability of social (public) housing estates have been neglected in most of the Niger Delta housing authority's social housing estate management practices today.

While strengthening and supporting the previous, the opinions from the tenants/residents, professionals/contractors and external housing estates community (total 12 Nr) was slightly different. They commented that the housing authority hardly ever monitored, evaluated and reported the dilapidated nature of social (public) housing estates and the various associated activities.

From the questionnaire responses, Table 7.6 indicate that 1.0% (1 Nr) rated sustainability concepts as having no relevance/importance, while 10.0% (10 Nr) rated it as having a negligible relevance/importance and 16.0% (16 Nr) rated it as having a limited relevance/importance. Whereas 46.0% (46 Nr) rated it as having an adequate relevance/ importance and 27.0% (27 Nr) rated it as having a high relevance/importance.

Table 7.6. Sustainability Consideration and Relevance in Social Housing Estates Management Practice

	Frequency	***Percent***
No Relevance/Importance	1	1.0
Negligible Relevance/Importance	10	10.0
Limited Relevance/Importance	16	16.0
Adequate Relevance/Importance	46	46.0
High Relevance/Importance	27	27.0
Total	***100***	***100.0***

This confirms in this instrument of data collection, and in this theme that 73.0% regarded sustainability concepts consideration and relevance/importance as being of adequate or high importance as against 27.0% of no or negligible (or limited) relevance/importance in

providing sustainable social housing estates management. This verifies that the sustainability concept in social (public) housing estates post-construction management was highly important to be considered in order to deliver social (public) housing estates sustainable management in the Niger Delta of Nigeria.

Regarding the documentary sources, it was clarified that sustainability in the housing sector which forms part of the global human settlement agenda was not to be compromised as it will enhance the living conditions of the people, and particularly the marginalised group in the economy (UNSD, 1992; FMLHUD, 2012). These documents further clarified that this can be achieved through integration of all appropriate strategies such as: an appropriate technology approach; human capacity development; appropriate management approaches; etc. in order to provide and sustain shelter for the people either in the developed or developing countries (UNSD, 1992; FMLHUD, 2012).

However, in the SHA (RSH&PDA) edict's document (2001), the issue of sustainability and it meaning was hardly addressed. This indicates that there is still a lack of recognition of the importance of the sustainability concepts and the prevalent issues of integration in the post-construction management of the housing estates in the Niger Delta region of Nigeria.

The direct observation in this theme, though limited, clarified that the sustainability concept and the prevalent factors/issues despite being vital were not at all or rarely considered in the pursuit to manage the social housing estates after their construction. For example, the environmental sanitation exercise carried out monthly in some states of the Niger Delta (Rivers State) is hardly and/or properly monitored in the whole state. This is where every resident in the state is compulsorily requested to stay in their home and/ or office (7.00am to 10.00am) and clean up their surroundings.

Therefore, the overall findings in this theme confirm in the research frame that sustainability and its relevant principles are vital in post-construction management of the social (public) housing estate in the Niger Delta region. It further confirms that at the moment, the consideration of the various activities to achieve this purpose has been inadequately considered and implemented in the Niger Delta region of Nigeria.

Hence, generalising the findings, it is recommended that the sustainability concepts and its various issues are highly important in the post-construction management of social (public) housing estate in other parts of Nigeria, and in other developing countries.

7.2.3. Beneficial Sustainability Factors in Social Housing Estates Management Practice

This theme seeks to establish that: policy support factors; environment factors; external estate community perception factors; finance/economic factors; management structure factors; technology factors; and monitoring, evaluation and reporting factors; were the essential and beneficial factors that needed to be integrated in social (public) housing estates.

However, concerning the semi-structured interviews in this theme, all the interviewees (total 16 Nr) agreed with the following statement:

> *"…issues of policy implementation, funding, monitoring and using the appropriate maintenance technology are those issues such that we cannot disregard..."*

(Transcribed Interviews, 2013)

The interviewees from the tenants/residents and external estate community further stressed by commenting that:

> *"…opinions and interests of our people are not considered…"*

(Transcribed Interviews, 2013)

The comments of the tenants/residents and the external estate community at this point questioned whether community social perceptions were not amongst the essential factors for social (public) housing estates sustainability, though very related to their opinions above.

The quantitative questionnaire survey results indicated in Table 7.7 show that out of the 100 respondents, 2.0% (2 Nr) rated these factors as strongly disagree, while 8.0% (8 Nr) rated these factors as disagree and 15.0% (15 Nr) rated these factors as unsure. With 35.0% (35 Nr) rating these factors as agree and 40.0% (40 Nr) rating these factors as strongly agree.

The results reveal that at least 75.0% agreed or strongly agreed on these identified factors in the body of knowledge as compared to 10.0% that strongly disagreed or disagreed. It therefore confirms that these listed factors earlier stated and as corroborated by the literature findings in this theme were essential and beneficial sustainability factors that need integration into the practice to manage the social (public) housing estates in a sustainable manner in the Niger Delta region of Nigeria.

Table 7.7 Beneficial Sustainability factors Social Housing Estates Management Practice

	Frequency	***Percent***
Strongly Disagree	2	2.0
Disagree	8	8.0
Unsure	15	15.0
Agree	35	35.0
Strongly Agree	40	40.0
Total	***100***	***100.0***

The documentary sources of evidence in this theme also clarified these factors as the essential issues that must be tackled if sustainability or sustainable development and management of housing units are to be sustained or maintained in the country (UNSD, 1992; Perry-Jones, 2001; FMLHUD, 2012). For example, the FMLHUD (2012, p. 90) clarify that:

> *"…[the] approach to successful housing policy implementation and sustainable economy growth, development and maintenance management is to focus attention in removal of binding constraints on housing development and thereafter management in Nigeria…" and "… strengthening the: national, state, local housing policy council; financial, technical and human capacity; encouraging community level participations; and incorporation of a strong committee that involved all relevant professionals and stakeholders in the monitoring, evaluation and impact assessment review; are essential factors in the housing units development and post construction management sustainability in the economy..."*
>
> (FMLHUD, 2012, p. 90)

Regarding the direct observations by the researcher in this theme, it is confirmed that a lack of finance; community perceptions of inclusion and involvement; unsupportive policy implementation; are lacking in the current housing development and post-construction management of the housing estates units. Also, the issue of the lack of co-ordination amongst the various bodies in the housing sector is incessant. It is also further clarified that if sustainability of the social (public) housing estate units' development benefits is to be achieved, these factors must be addressed properly.

The overall findings in all the sources of evidence in this subject and in the research circumstance confirm that the above listed factors or issues was the essential and beneficial factors in sustainability of social housing estate benefits after their construction.

These findings and as should be studied in the same context as of this present research, it is also projected that it should be applicable to the other regions of Nigeria, and other developing countries for the social (public) housing estates management after construction.

7.2.4. Sustainability Beneficial Factors Effects in Social Housing Estate Management Practice

This theme investigates the effects that the essential and beneficial sustainability factors of the social housing estates post-construction management have when they are integrated or not integrated. At the same time, it provides a ranking of the factors using the cumulative frequency of individual factors current utilised in the order from low to high magnitude cumulative effect (*see Table 7.15 and Figure 7.1, page 269*) as shown later.

Regarding the qualitative semi-structured interviews, all the interviews (total 16 Nr) agreed and acknowledged that the lack of recognition of those factors that are essential and beneficial in sustaining social housing estates have so much influenced the housing estate conditions, and how the housing authority responds to a housing estate units disrepair. Furthermore, one of the professionals/contractors stressed by saying:

> *"... Most public housing estates are left un-maintained because funds and policies supporting the proper allocation of the required funds are lacking or even where it does exist, never being implemented accordingly by..."*
>
> (Transcribed Interviews, 2013)

The results of the Lack of Policy Support (LPS) factor as indicated in Table 7.8 shows that 4.0% (4 Nr) rated it as having no direct effect, while 7.0% (7 Nr) rated it as having a negligible effect and 8.0% (8 Nr) rated it as having a limited effect. 38.0% (38 Nr) rated it as having a significant effect and 43.0% (43 Nr) rated it as having a high effect.

These findings and in the cumulative investigation confirm that it has a significant or high combined cumulative effects of 81.0% as evaluated against 19.0% of combined no direct or negligible (or limited) effects, and was ranked 3rd amongst the beneficial factors with influence in social housing estates sustainability (*see later*).

Table 7.8 Policy Support Factor Effects in Social Housing Estates Sustainability

	Frequency	***Percent***
No Direct Effect	4	4.0
Negligible Effect	7	7.0
Limited Effect	8	8.0
Significant Effect	38	38.0
High Effect	43	43.0
Total	***100***	***100.0***

In the management structure (MSE) factor, the results in Table 7.9 reveal that only 4.0% (4 Nr) rated it as having no direct effect, whereas 6.0% (6 Nr) rated it as having a negligible effect and 22.0% (22 Nr) rated it as having a limited effect. Another 43.0% (43 Nr) rated it as having a significant effect and 25.0% (25 Nr) rated it as having a high effect. This factor in these results of combined cumulative effect confirm that it has 68.0% significant or high effects in the sustainability of social housing estates as compared to 32.0% of no direct or negligible (or limited) effects. Hence, it ranks 5th amongst the beneficial factors with high effects on sustainability of social (public) housing estates (*see later*).

Table 7.9 Management Structure Factor Effects in Social Housing Estates Sustainability

	Frequency	***Percent***
No Direct Effect	4	4.0
Negligible Effect	6	6.0
Limited Effect	22	22.0
Significant Effect	43	43.0
High Effect	25	25.0
Total	***100***	***100.0***

For the technology factor effect (TECE), the results indicated in Table 7.10 show that 3.0% (3 Nr) rated it as having no direct effect, while 8.0% (8 Nr) rated it as having a negligible effect and 21.0% (21 Nr) rated it as having a limited effect. With 38.0% (38 Nr) rating it as having a significant effect and 30.0% (30 Nr) rating it as having a high effect. The combined cumulative effects of this factor confirm 68.0% cumulative value of significant or high effects as contrasted to 32.0% of no direct or negligible (or limited) effects, and ranking 4th amongst the beneficial sustainability factors for the sustainability of social (public) housing estates (*see later*).

Table 7.10 Technology Factor Effects in Social Housing Estates Sustainability

	Frequency	***Percent***
No Direct Effect	3	3.0
Negligible Effect	8	8.0
Limited Effect	21	21.0
Significant Effect	38	38.0
High Effect	30	30.0
Total	***100***	***100.0***

The community social perception factor (CPE) effect shown in Table 7.11 below reveal that 8.0% (8 Nr) rated it as having no direct effect, while 10.0% (10 Nr) rated it as having a negligible effect and 24.0% (24 Nr) rated it as having a limited effect. 33.0% (33 Nr) rated it as having a significant effect and 25.0% (25 Nr) rated it as having a high effect. These results in the combined cumulative effects analysis confirm that this factor, as unlike with the other factors, has a cumulative value of 58.0% significant or high effects as compared to the cumulative value of 42.0% no direct or negligible (or limited) effects. It is therefore ranked 7th amongst the beneficial sustainability factors for social (public) housing estate units (*see later*).

Table 7.11 Community Social Perception Effects in Social Housing Estates Sustainability

	Frequency	***Percent***
No Direct Effect	8	8.0
Negligible Effect	10	10.0
Limited Effect	24	24.0
Significant Effect	33	33.0
High Effect	25	25.0
Total	***100***	***100.0***

The economic and finance factor (EFE), as indicated in Table 7.12 shows that 2.0% (2 Nr) rated it as having no direct effect, while 6.0% (6 Nr) rated it as having a negligible effect and 11.0% (11 Nr) rated it as having a limited effect. 30.0% (30 Nr) rated it as having a significant effect and 51.0% (51 Nr) rated it as having a high effect. The findings confirm that this factor has 81.0% cumulative significant or high effects as compared to 18.0% of no direct or negligible (or limited) effects, ranking it 2nd amongst the beneficial sustainability factors with high influence in social (public) housing estates benefits/returns sustainability.

Table 7.12 Economic and Finance Effects in Social Housing Estates Sustainability

	Frequency	***Percent***
No Direct Effect	2	1.0
Negligible Effect	6	6.0
Limited Effect	11	11.0
Significant Effect	30	30.0
High Effect	51	51.0
Total	***100***	***100.0***

The environment factor (ENE) effect results indicated that 1.0% (1 Nr) rated it as having no direct effect, while 8.0% (8 Nr) rated it as having a negligible effect and 29.0% (29 Nr) rated it as having a limited effect. 36.0% (36 Nr) rated it as having a significant effect and 26.0% (26 Nr) rated it as having a high effect. These results, and in addition to the cumulative effects analysis confirm that this factor has a combined cumulative effects value of 62.0% significant or high effects as compared to the combined cumulative effect value of 38.0% no direct or negligible (or limited) effects. This was ranked 6th of the essential and beneficial sustainability factors in sustainability of the social housing estate units (*see later*).

Table 7.13 Environment Factor Effects in Social Housing Estates Sustainability

	Frequency	***Percent***
No Direct Effect	1	1.0
Negligible Effect	8	8.0
Limited Effect	29	29.0
Significant Effect	36	36.0
High Effect	26	26.0
Total	***100***	***100.0***

Monitoring, evaluation and reporting as identified essential factor (MER) in the results as indicated in Table 7.14 show that 1.0% (1 Nr) rated it as having no direct effect, while 8.0% (8 Nr) rated it as having a negligible effect and 10.0% (10 Nr) rated it as having a limited effect. Whereas, 28.0% (28 Nr) rated it as having a significant effect and 53.0% (53 Nr) rated it as having a high effect. These results and in addition to that of the combined cumulative results confirm that it has a combined cumulative significant or high effect value of 81.0% as contrasted to 19.0% of no direct or negligible (or limited) effects on the efforts to promote sustainability of the social (public) housing estates, and was therefore ranked 1st amongst the essential and beneficial factors (*see later*).

Table 7.14 Monitoring, Evaluation and Reporting Effects in Social Housing Estates Sustainability

	Frequency	***Percent***
No Direct Effect	1	1.0
Negligible Effect	8	8.0
Limited Effect	10	10.0
Significant Effect	28	28.0
High Effect	53	53.0
Total	***100***	***100.0***

Ranking the essential and beneficial sustainability factors effect as emerged above, Table 7.15 and Figure 7.1 was computed using the cumulative percentage procedure earlier explained and adopted in the previous chapters (Chapters Five and Six). Table 7.15 results however provided a crude evaluation of the rank order. Also, it does not recognise the variability of high effect compared to significant effect when making the ranking of items so close to each other.

Table 7.15. Sustainability Factor Effects Rank based on Cumulative Frequency of Variable Category

S/N	***Variables Category***	***Low Cumulative Effects (A) Cum %***	***High Cumulative Effects (B) Cum %***	***Ranking based on Cum % of B***	***Source***
1	*LPS*	*19.0%*	*81.0%*	*1st*	*Table 7.8*
2	*MSE*	*32.0%*	*68.0%*	*4th*	*Table 7.9*
3	*TECE*	*32.0%*	*68.0%*	*5th*	*Table 7.10*
4	*CPE*	*42.0%*	*58.0%*	*7th*	*Table 7.11*
5	*EFE*	*19.0%*	*81.0%*	*2nd*	*Table 7.12*
6	*ENE*	*38.0%*	*62.0%*	*6th*	*Table 7.13*
7	*MER*	*19.0%*	*81.0%*	*3rd*	*Table 7.14*
Total		***Approx. 28.7%***	***Approx. 71.3%***		
		Combined No Direct or Negligible or Limited Effect	***Combined Significant or High Effect***		

Furthermore, since the ranking of the essential and beneficial sustainability factors in Table 7.15 above is so close, additional differentiated analysis was completed, utilising the Relative

Importance Index (RII) which are as shown in Table 7.16 below. This provides discrimination between the five categories of response, rather than just the combined classes.

$$RII = (n_1 + 2n_2+3n_3+4n_4+5n_5)/5N$$

Where:

n_1 = *number of respondents that answers no direct effect;*

n_2 = *number of respondents that answered negligible effect;*

n_3 = *number of respondents that answered limited effect;*

n_4 = *number of respondents that answered significant effect;*

n_5 = *number of respondents that answered high effect;*

N = *total number of respondents = 100.*

Table 7.16. Sustainability Factors Effect Rank based on Relative Importance Index (RII) Value

Rank	***Essential and Beneficial Sustainability Factor Effects***	***1***	***2***	***3***	***4***	***5***	***R.I.I. Value***
1	Lack of Monitoring, Evaluation and Reporting Factor Effects	1	8	10	28	53	0.848
2	Economic/Finance Factor Effect	2	6	11	30	51	0.844
3	Lack of Policy Support Effect	4	7	8	38	43	0.818
4	Technology Factor Effects	3	8	21	38	30	0.758
5	Management Structure Inadequacy Factor Effect	4	6	22	43	25	0.758
6	Environment Factor Effect	1	8	29	36	26	0.756
7	Community Social Perception Factor Effects	8	10	24	33	25	0.714

Therefore, since Table 7.16 represents a more specific analysis and results, the ranking obtained from Table 7.16 are used rather than those of Table 7.15. However, there is a general degree of internal consistency between the two methods.

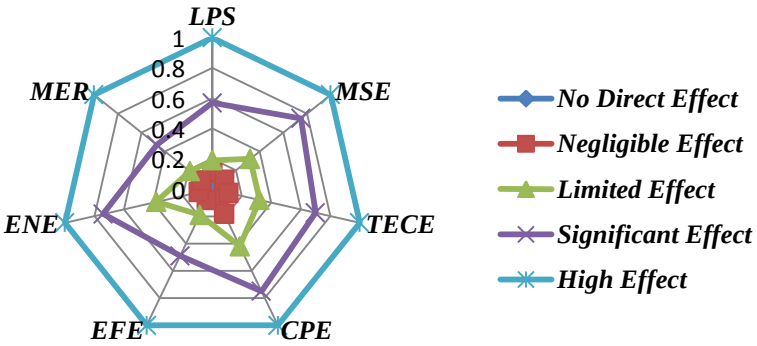

Figure 7.1. Sustainability Factors Effect Level in Social Housing Estate Management Practice

The overall results of the quantitative questionnaire survey reveal that the combined cumulative effects of all the factors was at least 71.3% high average combined cumulative factors effects as evaluated against 28.7.0% low average combined cumulative factors effects. The findings as indicated by Figure 7.5 further provides and confirms a strong positive association amongst these factors, and which suggests that these factors are capable to enhance or detract from the achievement of the social housing estates benefits in a sustainable manner.

Documentary evidence in this theme also confirms that the sustainable development and post-construction management of the social (public) housing estates in the research specific context cannot be achieved without the proper recognition and interlocking of these essential and beneficial factors/issues (Perry-Jones, 2001; FMLHUD, 2012; UNSD, 1992). However, in the SHA documents, this information is limited or lacking.

Direct observations in this theme have confirmed that the recognition and combination of these factors is so crucial that it should not be taken for granted by the relevant stakeholders in the housing estate development and post-construction management. For example, some of the housing estate components are damaged and/or thefts by some community member are related to the community and their perceptions to their being excluded from the housing estate management practices.

Therefore, in the research context, all the findings in the data triangulation sources confirm that it is crucial that the effects of these factors were tackled through integration into the management strategies for the sustainability of the housing estates, as well as the post-construction management to be maintained. This is supported by findings that these factors were important, as well as having a high influence in determining the fortunes of the social (public) housing estates benefits.

Further, it is suggested that if any of these factor effects are not addressed, it would pose the possibility of undermining the expected success and achievement of sustainable social (public) housing estates management, as well as their benefits in the sustenance of the built environment.

Generally, this findings would not only be to the research specific (Niger Delta region), but, it is recommended that the situation may be applicable to other region of Nigeria social (public) housing estates and other developing nations.

7.2.5. Beneficial Sustainability Factors Current Utilisation in Social Housing Estates Management Practice

This theme assesses the current echelon of FHA and SHA utilisation of the beneficial sustainability factors in their efforts to effectively provide sustainable post-construction management of social (public) housing estates in the region. Regarding the semi-structured interviews, all the interviewees (total 16 Nr) remarked that though it may be a challenge, it is worth doing in the social (public) housing estates context. Further, all interviewees (total 16 Nr) acknowledged that they believed that the environmental aspects are being utilised in the current housing estate management practice via the regular monthly environmental sanitation exercise but more is needed to be done. At the same time, one of the interviewees had this to say:

> *"….the social and economic issues to sustain the housing estates and the post-construction management, such as, social and infrastructural services provision are "nothing to talk about" as most social housing estates do not have the social services provided…."*
>
> *(Transcribed interviews, 2013)*

Additionally, all interviewees (total 16 Nr) observed that the need to utilise the sustainable issues (social, economic, environment) in the current social (public) housing estates management practice is indispensable and highly relevant, if the government social (public) housing estate benefits is to be sustainable.

However, this could also indicate that there is fragmentation of the awareness and understanding of sustainability and with the beneficial factors, as the attempts to incorporate these factors lie solely within the environmental context of sustainability or sustainable development. This is in agreement with the findings in Table 7.4 and 7.5 earlier discussed in this chapter.

The questionnaire survey results as indicated in Figure 7.2 reveal that the current utilisation of the sustainability beneficial factors in the current management practices was 35.0% (35 Nr) rated as being no utilisation, while 26.0% (26 Nr) rated their utilisation as being negligible and 18.0% (18 Nr) rated it as being a limited utilisation. Only 15.0% (15 Nr) rated their utilisation as being an adequate utilisation and 6.0% (6 Nr) rated their utilisation as a high utilisation. These findings confirm that 79.0% of these sustainability beneficial factors were not or negligibly (or limited) utilised in the current housing estate management practices to

manage and sustain social (public) housing estates after construction or provision. While it was only 21.0% of these beneficial sustainability factors that were adequately or highly utilised in the current housing estate management practices.

Therefore, it is assumed that the social (public) housing estates were not going to be sustained by the current post-construction management practices as expected in this research context, since these beneficial and essential sustainability factors were apparently under-utilised or overlooked.

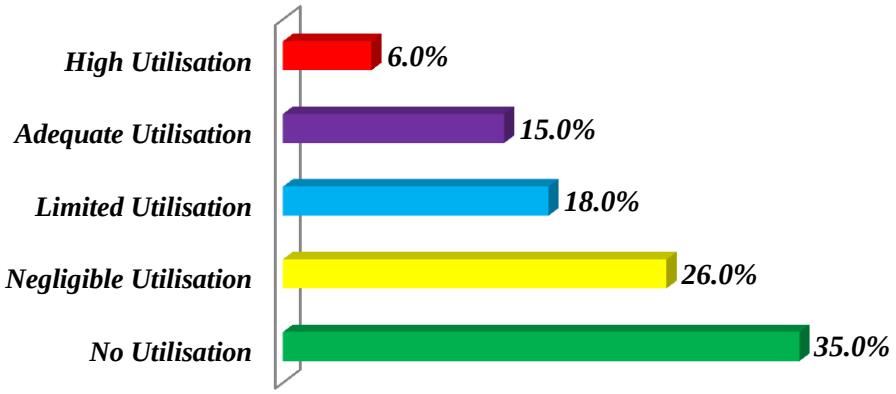

Figure 7.2. Beneficial Sustainability Factors Utilisation in Social Housing Estates Management Practice

Documentary sources of evidence in this theme were limited, and as such could not clarify the level of utilisation of these factors by either housing authority in the research context. However, the NHP draft report (2011) elucidated a lack of application and implementation of these issues, and of which of them should have been provided to improve sustainability in the housing sector and achieve the benefits of their provision in the built environment.

The direct observation in this subject, by the researcher and in the research context, was also limited, and did not provide any sources of evidence in the theme.

The overall findings by data triangulation of all the sources of evidence confirm in the research context that there are a lacks or feeble utilisation of these essential and beneficial sustainability factors in the current management practices of the social (public) housing estate and their lack of benefits to the people and the built environment. Hence, guaranteeing sustainability of the social housing estate benefits through the current management tactic is doubtful in its present circumstance in the Niger Delta social (public) housing estates and other regions of Nigeria, as well as in other developing countries.

7.2.6. Beneficial Sustainability Factors Integration in Social Housing Estate Management Practice

This theme evaluates in the research frame whether it was necessary to integrate the essential and beneficial sustainability factors; the appropriate estate management approach; appropriate maintenance management type; and the relevant stakeholders; into the post-construction management activities of social (public) housing estates for their sustainability.

The qualitative semi-structured interviews in this theme reveal that all the interviewees (total 16 Nr) commented that they (essential and beneficial sustainability factors, appropriate estate management method, appropriate maintenance management type, relevant stakeholders) should all be strongly aligned for the social housing estates and provided by government continuity as regards to maintaining the benefits for the people and the economy at large. Supporting the comments, an interviewee from the state housing authority states thus:

> *"…what is essential, in the mix of what is appropriate, as well as allowing those that are relevant to make changes to things to participate at all times, is what the state housing authority management should pursue in their housing estates…"*
>
> (Transcribed Interviews, 2013)

The questionnaire survey results in this theme as indicated in Figure 7.3 show that 2.0% (2 Nr) rated their integration as strongly disagreed, while 3.0% (3 Nr) rated their integration as disagree and 10.0% (10 Nr) rated their integration as unsure. Whereas 21.0% (21 Nr) rated their integration as agree and 64.0% (64 Nr) rated their integration as strongly agreed. The results confirm that 85.0% agreed or strongly agreed that: the beneficial sustainability factors; the appropriate estate management method; appropriate maintenance management type; and the relevant stakeholders; should be integrated. However, only 15.0% strongly disagreed or disagreed (or unsure) about their merging in the social housing estate management practice for sustainability. These results in the research context confirm that their integration was not to be compromised since the sustainability of social (public) housing estates was at stake.

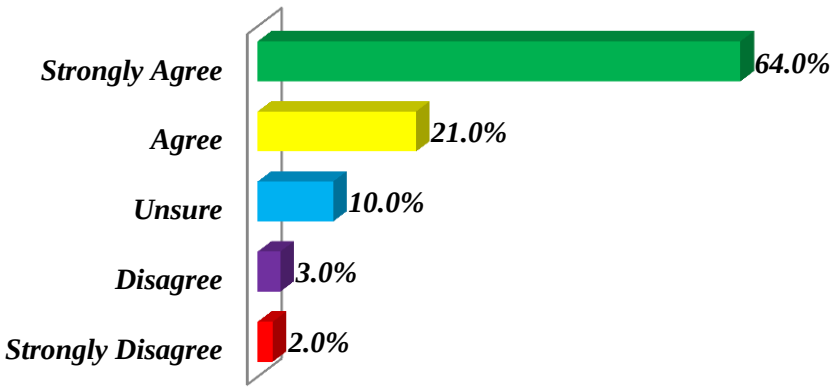

Figure 7.3. Beneficial Sustainability Factors Integration in Social Housing Estate Management Practice

Documentary sources clarify that the integration of the sustainability principles and issues was significant in sustaining and maintaining the social housing conditions (Cooper and Jones, 2008). Also, UNSD (1992) clarified that sustaining housing development and growth in any developing or developed country's', and specific to Nigeria (FMLHUD, 2012) requires the strong association, integration and co-operation of all the relevant and binding factors, stakeholders, approaches and technologies in the sector. This suffice to state that sustainability in social housing are improved based on how associated these binding factors are so as to achieve the stated goals and objectives.

Direct observation in this theme reveals that why in such efforts to manage housing estates; different issues, constraints and actors are meaningfully needed to be brought together, as well as co-operating with others for sustained achievement. However, evidence in the form of a manuscript or snapshots to illustrate this effect by the researcher is limited in the research circumstance due to time and financial resource limitations.

Therefore, the findings in this theme in data triangulation confirms the research context that a stronger amalgamation of: the appropriate management style; the appropriate maintenance method; the relevant stakeholders; and the essential sustainability factors/issues; were fundamental for the sustainable management of the social (public) housing estates in the Niger Delta region of Nigeria. This finding is anticipated also to be applicable to other region of Nigeria and developing countries.

7.2.7. Existing Post-Construction Management Framework for Social Housing Estate Sustainability

The analysis and results in this theme seek to establish if there was any known and/or existing framework that is used by either housing authority in the current post-construction management of their social (public) housing estates. Thus, assists in supporting the sustainability of the social housing estate and its benefits in the built environment of the Niger Delta of Nigeria.

Regarding this theme, all the interviewees (total 16 Nr) acknowledged that there was no known framework either provided by the housing authorities or the government to adopt in the management of the housing estates after their construction. In fact, one of the interviewees from the SHA commented that what:

> *"... normally happens and of most interest, is to adopt whatever template, and on how expedient it is to the authority in order to post-construction manage the housing estate..."*

(Transcribed Interviews, 2013)

Further, one of the professionals/contractors after acknowledging that no framework existed commented thus:

> *"...this lack of no existing template to use in the housing estate management, it is a high time that a framework to use in management of the housing estate emerge... and ... this framework developed and implemented, would help to improve and sustain the housing estates provided..."*

(Transcribed Interviews, 2013)

The quantitative analysis and results as indicated in Figure 7.4 below, shows that 67.0% (67 Nr) rated the knowledge/awareness of an existing framework as strongly disagree/no awareness, while 4.0% (4 Nr) rated the knowledge/awareness of an existing framework as disagree or negligible awareness and 13.0% (13 Nr) rated the knowledge/awareness of an existing framework as unsure or limited awareness. With only 1.0% (1 Nr) rating the knowledge/awareness of an existing framework as agree or significant awareness and 15.0% (15 Nr) rating the knowledge/awareness of an existing framework as strongly agree or high awareness. This results reveals that the knowledge/awareness of an existing framework

currently used in the practice of post-construction managing the social (public) housing estates was 84.0% strongly disagreed or disagreed (or unsure). This is greater than the 16.0% that agreed or strongly agreed that there is an existing framework that is used by either housing authority in the post-construction management of the social (public) housing estates.

As previously stated, it was impossible to evaluate the 16.0% that stated that a current standard existed. However, the researcher is confident that if such a standard does exist, it is not widely recognised or widely available. Despite data searches, no documentary evidence of such a standard was found.

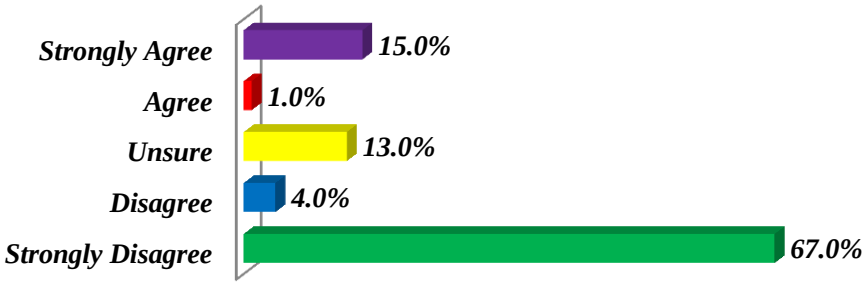

Figure 7.4. Existing Post-Construction Management Framework for Social Housing Estate Sustainability

Documentary sources of evidence in this subject clarifies that there was no existing national framework used in the post-construction management of social housing estates. However, an institutional framework was advocated for utilisation in the national housing policy document (FMLHUD, 2012) since it would cause the effective housing delivery as well as efficient urban management in the country (Nigeria). This was aimed to provide the structure of which housing provision can be sustainably delivered with the various institutions charged with the responsibilities of housing development. However, this FMLHUD (2012) document only established the roles of the various institutions, but the strategy to follow in the post-construction management was lacking (FMLHUD, 2012).

The direct observation in this subject by the researcher reveals non-clarity of a template existing in either housing authority for the management of the housing estates after construction. This supports the comments of the interviewees in the qualitative semi-structured interviews evidence earlier stated in this theme.

Hence, these findings in this theme and to the research context confirm that there was no effective framework existing currently that was adopted by either housing authority in the

post-construction management of the social (public) housing estates for their sustainability in the Nigeria Delta region of Nigeria. This finding suggests that this position is the same to other parts of Nigeria and developing countries.

7.2.8. Framework Need for the Sustainable Management of Social (Public) Housing Estate

This theme seeks to evaluate if the expected framework development for sustainable post-construction management of social (public) housing estates was desirable. Particularly where it's expected to promote the sustainability of the benefits of assets, which should not only be financial but for others benefits like social prestige etc. to the providers and/or owners and to those in occupation.

Regarding the qualitative semi-structured interviews in this theme, all the interviewees (total 16 Nr) remarked that a framework on how best the social (public) housing estates should be kept in good and habitable conditions at all times is urgently needed. In a further support, one of the interviewee from the FHA and SHA like-minded to the above remark, states thus:

> *"… [We] need a good frame to adopt in order to properly manage and sustain the housing estates that the government provided in the region… as the amorphous methods used in managing the housing estates are not the best for sustainability…"*
>
> (Transcribed Interviews, 2013)

The questionnaire survey results in this theme as indicated in Figure 7.4 further reveal that none of the respondents rated the provision of a framework for the social (public) housing estates to be managed in a sustainable manner was unneeded. While 2.0% (2 Nr) rated the framework provision as being a negligible need and 8.0% (8 Nr) rated the framework provision as being a limited need. 22.0% (22 Nr) rated the framework provision as being a significant need and 68.0% (68 Nr) rated the framework provision as being a high need. These results show that the provision or development of a framework to adopt, as well as supporting the sustainability of the social (public) housing estates after construction cannot be over-emphasised. This is because it was 90.0% significant or high need as compared to barely 10.0% of no or negligible (or limited) need.

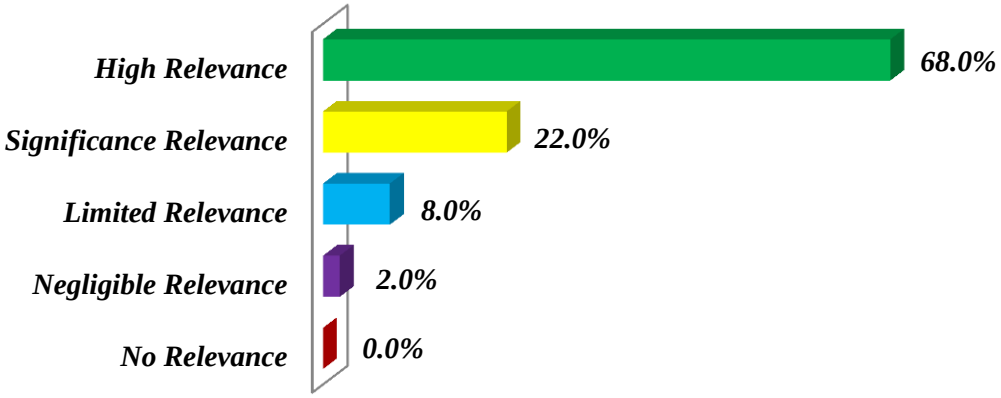

Figure 7.5. Framework Relevance/Importance for the Sustainable Management of Social (Public) Housing Estate

Documentary sources of evidence in this theme have also confirmed that sustainability in the research specific context requires the interlocking of various components. Though, no specific framework was currently developed to the specific concern in the related documents reviewed.

The direct observation in this theme by the researcher, however, was limited. But within the limit, it revealed that there is no consistent pattern used by either housing authority in their efforts to manage the housing estates after construction.

Therefore, the overall findings of this theme to the research context confirms that developing the integrated framework for the sustainable management of social (public) housing estate in the Niger Delta region of Nigeria was needed and fundamental. At the same, it is proposed that this finding can be replicable to other regions of Nigeria and other developing nations.

7.3. TEST OF SIGNIFICANCE

This theme seeks to establish whether there is a relationship between the currently used: estate management approaches; maintenance management methods; the relevant stakeholders' involvement; and the essential and beneficial sustainability factors; in efforts to sustainably manage the social (public) housing estate after provision in the region. Further, it also helped to verify the strength of their correlation and the association effect size. These were utilised to substantiate if that correlation was convincing in social housing estates conditions and post-construction management approaches verified (in the previous chapters) of this research study. Nonetheless, the exercise was further to ascertain if the integration of essential and beneficial sustainability factors were of significance in the processes that should enhance the sustainable management of social (public) housing estates after delivery in the Niger Delta areas of Nigeria.

Subsequent to the findings in this chapter, and in supporting the aims and objectives of the research, a Pairwise Analysis of Variables was conducted as shown in Table 7.17 below.

Table 7. 17. Pairwise Analysis of Sustainability Factors; Estate Management Approaches; Maintenance Methods; and Relevant Stakeholders Involvement

Variable	***rho***	***Estate Management Approaches***	***Maintenance Methods***	***Relevant Stakeholders Involvement***
Sustainability Factors Integrations	Correlation Coefficient	0.022	0.181	0.268
	Sig. (2tail)	0.829	0.072	0.007
	N	100	100	100

Table 7.17 as determined from the Spearman's correlation coefficient ranges presented earlier in Table 5.4 (Chapter Five of this research), revealed that there was a weak positive correlation between the essential and beneficial sustainability factors and the estate management approaches, *rho = 0.022, n = 100, sig./p = ≤ 0.829,* with lower levels of the essential and beneficial sustainability factors being associated with the less effective estate management approaches adopted in the current management of social (public) housing estates.

Furthermore, the findings reveal that there was also a weak positive association between the essential and beneficial sustainability factors and the maintenance management methods, *rho = 0.181, n = 100, sig. /p = ≤ 0.072,* with lower levels of the essential and beneficial sustainability factors being associated with the maintenance management method adopted in the current post-construction management of the social (public) housing estates.

Additionally, the results of the analysis reveal that there was a weak positive correlation between the essential and beneficial sustainability factors and the relevant stakeholders involvement and relevance, *rho = 0.268, n = 100, sig. /p ≤ 0.007*, with lower levels of the essential and beneficial sustainability factors being associated with the less stakeholders' involvement and relevance in the current effort to manage the social (public) housing estates after their delivery in the region.

The overall pairwise analysis and findings confirm that the effects of the essential and beneficial sustainability factors; the estate management approach; the maintenance management method; and the relevant stakeholders' involvement; and utilisation by either housing authority to manage the social (public) housing estate after provision was meagrely

and ineffective to advances and encouragement of social (public) housing estate benefits sustainability.

It is in this research context and purpose that: the essential and beneficial sustainability factors; the appropriate estate management method; the maintenance management type; and the relevant stakeholders' involvement; be integrated and collaborative, if sustainable management of social (public) housing estate after delivery is to be achieved and sustained.

7.4. SUMMARY OF FINDINGS/CHAPTER

This chapter and the various themes have confirmed and supported through the combination of four sources of data, and reinforced from within the literature: the essential and beneficial sustainability factors in social (public) housing estates; and their need/relevance; and integration; in the post-construction management practice for social housing estates benefits sustainability in the Niger Delta region of Nigeria.

The main findings in the research specific context have demonstrated and confirmed the following:

- That, the lack of high or significant awareness and understanding of sustainable development concepts and its essential factors in social (public) housing estates post-construction management was a significant factor in the failure of current practices (*see Table 7.4 and 7.5, page 259*);
- That, sustainability and its relevant principles/factors consideration in the various activities has had little consideration irrespective that it was vital in post-construction management of the social (public) housing estate in the Niger Delta region (*see Table 7.6, page 261*);
- That, the essential and beneficial sustainability factors in sustaining of social housing estate benefits after their construction were: policy support factor; environment factor; external estate community perception factor; finance/economic factor; management structure factor; technology factor; and monitoring, evaluation and reporting factor (*see Table 7.7, page 264*);
- That, the beneficial factors having a high influence in determining the sustainability of the social (public) housing estates benefits, affecting the capability of the expected

success and achievement of sustainable social (public) housing estates management in the built environment where not being addressed by the relevant authorities (*see Table 7.8-16 and Figure 7.1, page 266 – 270*);

- That, there is a lack or feeble utilisation of these essential and beneficial sustainability factors in the current management practices of the social (public) housing estate and a lacking of recognition of their benefits to the people and the built environment (*see Figure 7.2, page 273*);

- That, stronger amalgamation of: the appropriate management style; the appropriate maintenance method; the relevant stakeholders; and the essential sustainability factors/issues; was fundamentally required for the sustainable management of the social (public) housing estates in the Niger Delta region of Nigeria (*see Figure 7.3, page 275*);

- That, there was no effective framework existing currently being adopted by either housing authority in the post-construction management practice of the social (public) housing estates for the sustainability, as well as supporting and promoting their benefits sustenance in the built environment after construction (*see Figure 7.4, page 277);*

- That, developing the integrated framework for the sustainable management of social (public) housing estate in the Niger Delta region of Nigeria was needed and fundamental (*see Figure 7.5, page 279*);

- That, the correlation and the effects size of the essential and beneficial sustainability factors and: the estate management approach; the maintenance management method; and the relevant stakeholders' involvement; in the current energies by either housing authority to manage the social (public) housing estate after provision was meagre and ineffective to advance and encourage social (public) housing estate benefits sustainability (*see Table 7.17, page 280*).

By generalising these findings, it is proposed that the findings are applicable to other regions of Nigeria and other developing countries.

Therefore, the correlations and interactions between these themes and the research objectives can be confirmed within the research specific data as the possible issues that have left the

government social (public) housing estates in continuous dilapidation or state of disrepair in the Niger Delta region of Nigeria.

Also, the living conditions, health, safety, and security of tenure in those housing estates for the residents/tenants are confirmed as being unsustainable.

This contrasts with the advocacy of the United Nations Sustainable Development Agenda 21 (UNSD, 1992) for sustainable shelter delivery in every developed and developing country in the world. This fundamentally contributes to, and should benefit from the proposed development of the integrated framework that should be used in the sustainable management of social (public) housing estates after their construction. This is referred to in the next chapter (Framework for the Sustainable Management of Social (Public) Housing Estate), and then in the final chapter of this present research.

CHAPTER 8: DEVELOPING A FRAMEWORK FOR THE SUSTAINABLE MANAGEMENT OF SOCIAL (PUBLIC) HOUSING ESTATES IN THE NIGER DELTA (RESEARCH OBJECTIVE FIVE)

8.1. INTRODUCTION

This chapter presents the proposed operational framework for the sustainable management of social (public) housing estates in the Niger Delta region of Nigeria, which addresses the fifth objective of the research. It further provides an explanation of: the framework development process; the step-by-step approach of using the framework in practice; the validation strategy; and the results. Therefore, the sub- objectives of this chapter are:

- To propose an operational framework using the findings from the previous chapters (Five, Six, and Seven) of this research work;
- To validate the developed framework using a questionnaire survey instrument in a quantitative approach.
- To propose the STEP-BY-STEP approach of using the framework in practice by the housing authorities;

8.2. THE DEVELOPMENT OF THE CONCEPTUAL FRAMEWORK

As earlier mentioned (in chapter three), framework development research by Buckley *et. al.* (1976) suggests that the use of both a qualitative and quantitative instrument (such as: semi-structured interviews; questionnaire survey; documentation; and direct observation; as in the case of this research) is a good procedure for framework development. But, the development of a conceptual framework is a process whereby the researcher systematises and theorises on data generated from different literature foundations, and afterwards, comes the empirical data upon which a proposed framework is conceived (Jabareen, 2009). This implies that such data gathered from different sources of evidence enables the researcher to have qualitative and quantitative understandings of the various problems in its environmental, socio-economic and political realities. Acknowledging this factor was an important and relevant step in the achievement of the proposed framework development for the sustainable management of social (public) housing estates in the Niger Delta region of Nigeria. Another considered factor

is how clear the content is, and can the content be applicable and adaptable to fit different locations. A proposed framework, when well-articulated and developed, enables all stakeholders in a particular concern to better understand, identify, assess, integrate, implement and monitor the vital issues, such as the sustainability of project development benefits (Perry-Jones, *et. al.*, 2001). This studies framework is based on the awareness, understanding, identification, and assessment of: the sustainability factors; estate management approaches; housing estate maintenance management; and stakeholder relevance and management. However, the proposed framework was preceded by a initial conceptual framework developed through a review of the relevant literature on the subject areas and contextualised into social (public) housing estate post-construction management (Figure 2.9a, page 99), and is represented below.

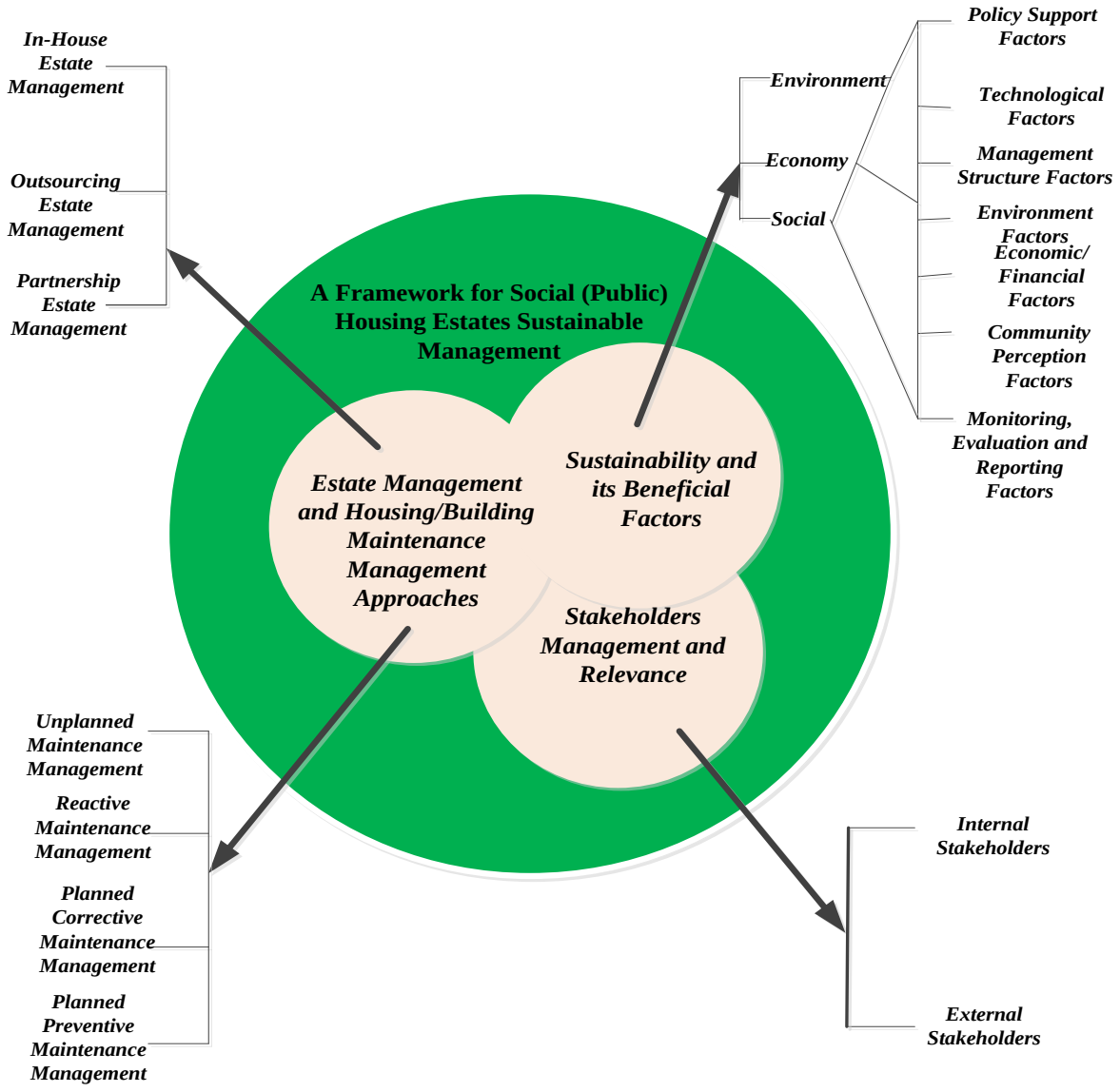

Figure 2.9a An Initial Conceptual Framework

Figure 2.9a showed the initial conceptual framework conceived by the researcher for sustainable management of social housing estates as a result of the research prediction that sustainably managing social (public) housing estate might not be attained with a single set of components. But, other relevant and vital sets of components, each collaborating together were significant in social (public) housing estate management provision. This signified and/or suggested that, in order to manage social housing estates in a sustainable manner, the various factors/drivers from: housing/building maintenance management; estate management; sustainability; and stakeholders' management; were fundamental and very relevant. Therefore, these required, as earlier mentioned, the need to be: identified; understood; assessed; and implemented; as appropriate. These appropriately identified and assessed drivers are subsequently integrated into social housing estates for their sustainable post-construction management in the Niger Delta region of Nigeria.

Yet, even when these drivers/factors are identified, understood and assessed, their implementation requires stronger amalgamation of the various components to achieve sustainability. This is the foundation upon which the literature review, empirical data, analysis and findings are used in the development of the final framework and that the entire research work emerged from and was sustained by.

The conceptual framework (Figure 2.9a) for the sustainable management of social (public) housing estate in the Niger Delta region of Nigeria, evolved and emerged from the qualitative and quantitative findings, as shown in Figure 8.1, not only answers the research objectives but reveals that a major intervention or innovation was required in this area. The findings which were fashioned from the research analysis, as supported by a range of relevant literature, cautions that social (public) housing estates should not be delivered into the economy without appropriate and continuous planning, monitoring, evaluation and reporting. This is particularly important for their non-dilapidation and the sustainability of their benefits within the built environment. Stronger integration of the various drivers of the social (public) housing estates by the relevant FHA and SHA was indispensable if the social (public) housing estates were to be managed in a sustainable manner by the relevant housing authority. The need to utilise an appropriate housing maintenance and management system after their construction for sustainability by integrating the various principles of sustainability have previously been recommended (Copper and Jones, 2008). Nevertheless, the current poor condition of the social housing estates, due to: a lack of appropriate maintenance management approach; lack of appropriate estate management approach; lack of or ineffective involvement of the relevant stakeholders; and the feeble integration of the essential and beneficial

sustainability factors; into the social (public) housing estates in the Niger Delta region of Nigeria, even in the other regions of Nigeria has made it indispensable to propagate this position in the study.

Figure 8.1 represents the summary of the evolution process of the framework for the sustainable management of social housing estates, which was developed after an in-depth qualitative and quantitative investigation conducted on social (public) housing estates current post-construction management from the FHA and SHA in the Niger Delta region of Nigeria. This research element involved determining the potential drivers/factors that should be improve and the challenges factors that should be removed from the sustainability of the social (public) housing estates after their construction or provision. These are shown in a process diagram in Figure 8.1.

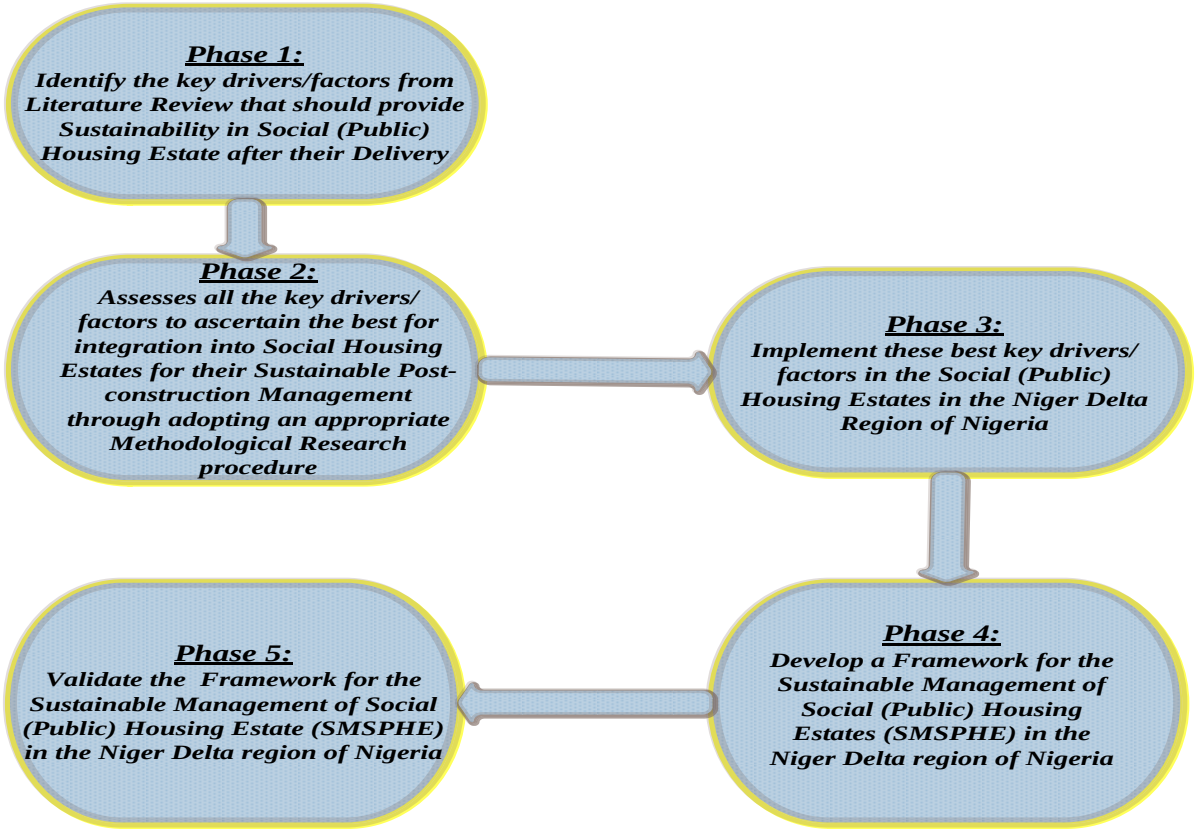

Figure 8.1. Evolution Process of the Framework

However, the initial conceptual framework (Figure 2.9a) was further refined to become that of Figure 8.2 below, after considering the findings of the fieldwork data and represents the final framework for the sustainable management of social (public) housing estates in the Niger Delta region of Nigeria in the study.

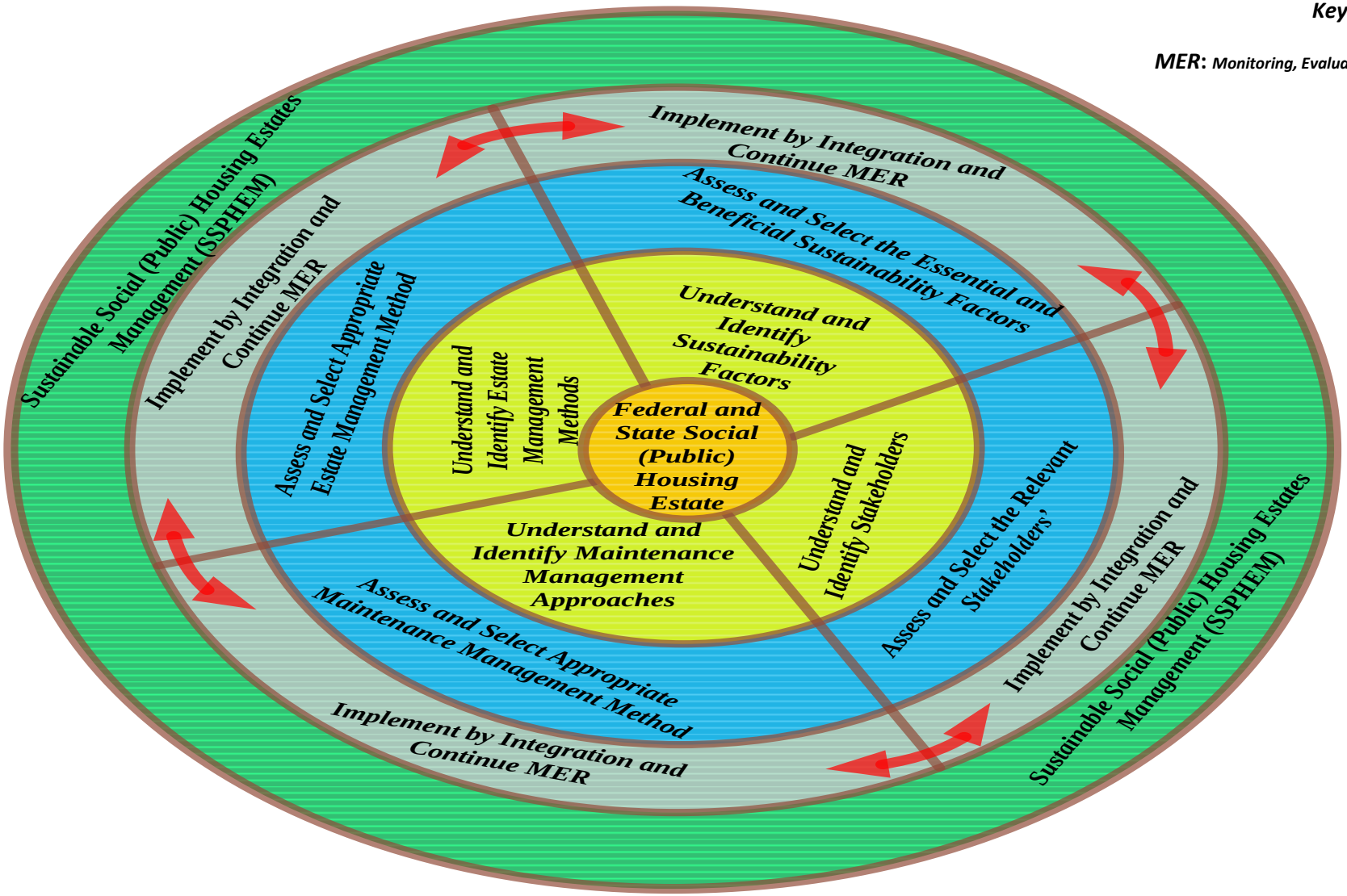

Figure 8.2. Operational Framework for the Sustainable Management of Social (Public) Housing Estate

Figure 8.2 works from the centre of the framework outwards. All of the elements contained within a ring work interactively and in combination, therefore, the elements are reiterated until a comprehensive evaluation has been achieved. Then the framework moves outwards to the next ring, and so on until the final/last ring of the framework.

As earlier proposed in the study, the identified challenging factors are assessed as having a negligible effect. Since the potential drivers/factors impact completely outweighs the challenges influence, in providing sustainable management of social housing estates after delivery. Hence, the challenging factors have been eliminated from the framework.

Furthermore, according to the findings of the study, the estate management approaches and maintenance management approaches currently used in the post-construction management of the social (public) housing estates have failed or are shown to be ineffective. New innovative approaches have been analysed and are now to be assessed and selected when appropriate for use within the framework.

At the same time, the lack of relevant stakeholders' inclusion in the current housing estates management practice of the Niger Delta, as well as the feeble consideration, utilisation and integration of the essential and beneficial sustainability factors into the current housing estates management practice remain as a current failure or an ineffective effort. This is evidenced by the current poor condition of the housing estates units and the unsustainability of the social housing estates and its benefits. New stakeholder groups have been analysed and are now to be assessed and selected when appropriate for use within the framework.

The framework promotes the effective and sufficient association of the appropriate approaches since housing sustainability remains a priority to combating the housing deficit challenge faced in Nigerian society. This is supported by the findings of the study which emphasised the importance and relevance of developing a proactive strategy to improve the social (public) housing estates situation after their construction. This is by the integration of the essential and beneficial sustainability factors; appropriate estate management approach (partnership approach); appropriate maintenance management approach (planned preventive maintenance management approach); and the relevant stakeholders; into the post-construction management. This is shown within the framework by the penultimate outer ring of the framework.

The unsustainable approaches and /or drivers/factors identified by the findings of the study that may hinder post-construction management must be set aside in the implementation of the

framework. This is necessary to give the framework the credit of acceptance and permit implementation success, and also to eradicate the unnecessary risks that may be associated with a failure to comply with the framework.

Therefore, the framework focuses on innovative ways of improving and enhancing the social (public) housing estates, which thereafter reduces the social (public) housing estates situation and deficits in the Niger Delta region of Nigeria, and to other regions of Nigeria and developing countries.

The current poor access to and integration of the drivers are all supported by the analysis and findings in chapters Five, Six and Seven of the research study, particularly where the findings confirm that there were currently feeble associations between the essential and beneficial sustainability factors, the appropriate estate management approach, the appropriate maintenance management approach and the involvement of the relevant stakeholders in the social housing estates post-construction management. These associations should be stronger so as to improve and promote the sustainability of the social housing estates and their benefits to the people and the economy.

The whole research premise was to increase and improve the housing estate units in the Niger Delta of Nigeria by providing a practical approach that would sustain the delivered housing estates units and their benefits after taking into cognisance the driving or failure factors. Figure 8.2 identifies and integrates these factors and drivers.

While serving as specific information to the housing authority management staff on how best the housing estates of the Niger Delta would be managed sustainably, the framework is proposed to be generally applicable to other regions of Nigeria and to other developing countries, either by adopting the framework as it is and implementing it into practice or by further contextualising it to specific locations where deemed necessary.

8.3. FRAMEWORK VALIDATION PROCESS

The operational framework validation was to verify whether it was good enough for use and to establish that it meets particular routine needs (Fishman and Kiviat 1968; Sargent 1982; Law and Kelton 1991; cited in Rao, *et.al.*, 1998; Edward, 1996). This suggests that the operational framework of this study is purpose specific for the task and its validation should only be within the context of the research purpose and frame (Balci and Sargent, 1981, cited in Rao, *et.al.,* 1998).

However, as earlier stated in the methodology chapter of the study, validation is not necessarily an approach for testing a precise argument or for certifying the sureness of current logical considerations, nor is it a required action of every framework development (Edward, 1996). Rather, the process should assist in verifying the validity, reliability and replicability of the framework within the Niger Delta context and in other regions of Nigeria or other developing countries**.** Furthermore, ascertaining the soundness of a developed framework is not a dualistic conclusion that a developed framework is clearly effective or unacceptable; rather, it should be considered as the degree of reliance the framework proffers.

Therefore, no framework is absolutely correct in the logic of a one-to-one communication between itself and real life; and undoubtedly not a quest for an unqualified reality or precision, but a progression of theories and the findings in the context of the study that progressively approach the truth (Shannon, 1975, cited in Rao, *et.al.,* 1998). Hence, validation is a demonstration that the framework within its field and the context of its applicability retains a reasonable range of precision, reliable with the intended use of the operational framework (Schlesinger, *et al.,* 1979, cited in Rao, *et. al*., 1998).

Rao, *et. al*., (1998) suggest that there is a multistage approach in the validation of the framework, and this includes the conceptual framework validation process/procedure and the operational framework validation process/procedure. They further contended that the conceptual framework validation approach is a process that tries to assess the replication of the operational framework against completeness and acceptability with the underpinning theoretical literature. The operational framework validation procedure is a process that encompasses the comparisons between the framework predictions and how it measures practical organisational performance (Rao, *et. al.,* 1998). This clearly indicates that both procedures are distinct processes, since the conceptual framework validation procedure is not automatically an antecedent to operational framework validation (Rao, *et.al.,* 1998). However, the conceptual framework validation should be a simultaneous and re-occurring process that may take place in unification with the operational framework validation, and may allow re-examination in order to elucidate inconsistent activities identified during the operational framework validation process (Rao, *et.al.,* 1998). The summary of the process stages involved in the approach to the overall framework validation is presented in Figure 8.3 below, and as inspired by Rao, *et. al.,* (1998).

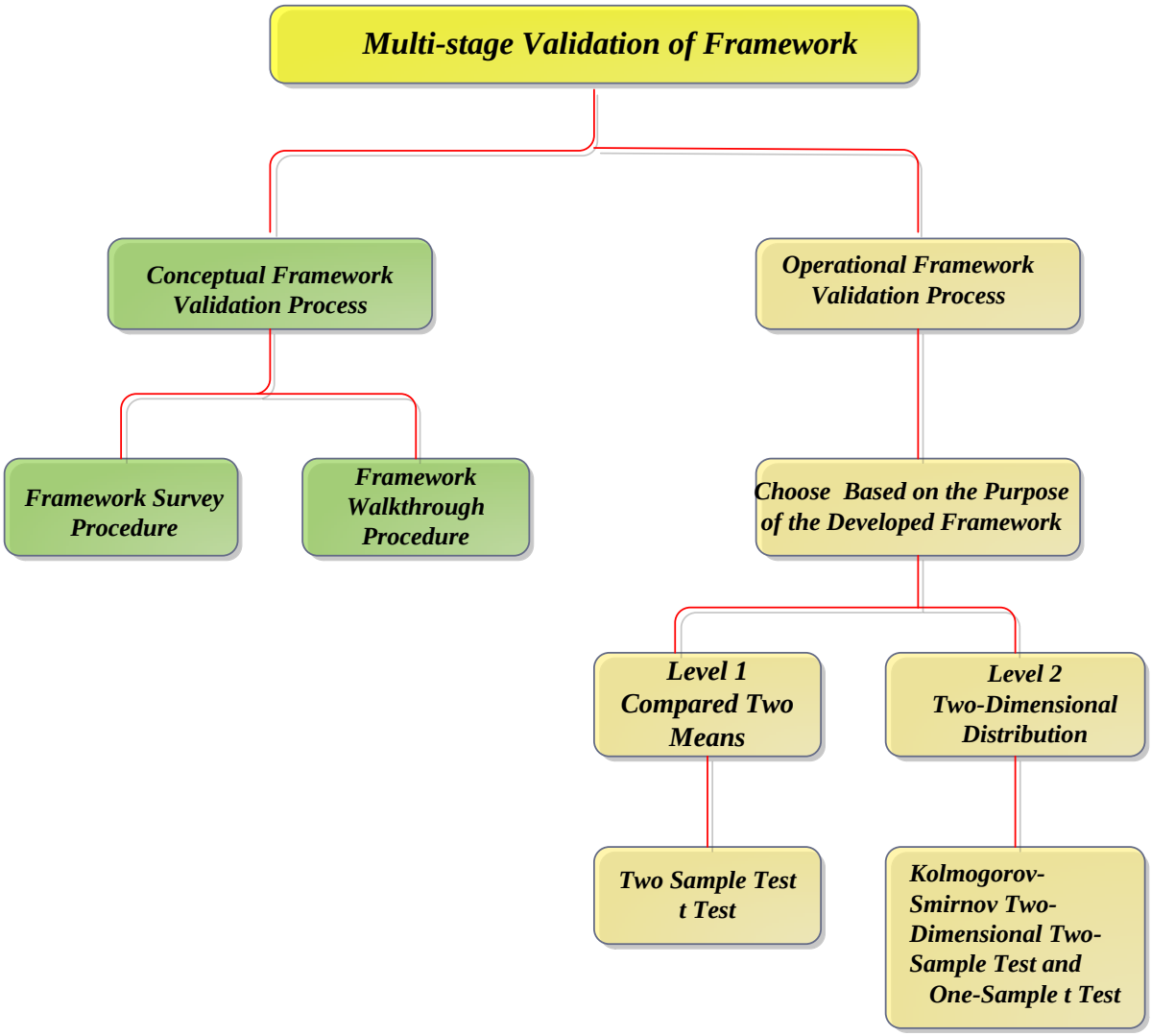

Figure 8.3 Multistage Validation of Framework Practice (Adopted from Rao, et.al., 1998)

Nevertheless, the operational framework in this study is developed for the Federal and State Housing Authorities, and other relevant and involved organisations to use in order to provide the sustainability of the social (public) housing estates after construction/production in the Niger Delta region of Nigeria. Following the understanding that the framework under validation here is that conceptualised and proposed by the researcher based on the theoretical underpinnings in the field and the empirical findings of the study, as well as on the underlying assumptions of the multi-stage validation framework process (Figure 8.4) suggested by Rao, *et. al.*, (1998); and which has been previously used by Rao, *et al*., (1998) to validate a model that helped to transfer confidence in model performance to the traffic engineering community. Therefore, the study framework validation adopts the conceptual approach of validation progression. This is because, the main purpose of the framework validation was to evaluate its

soundness and acceptability in conjunction with the support of the underlying theoretical basis from literature and the findings from the data analysed.

The survey and walkthrough procedure of the conceptual framework validation approach was embraced and was summed up in a questionnaire survey instrument of information gathering from selected or identified respondents in a quantitative research approach stance. The quantitative approach (questionnaire survey) as earlier stated was used because of the limited financial resources available to the research, and to the researcher. Also, for socio-economic research such as this with substantial human intrusion, valuable and rich data are gathered through surveys, interviews, etc. sources (Manson, 2003).

Consequently, the questionnaire survey involved a total of fifteen (15 Nr) questionnaires administered to selected respondents in the Federal Housing Authority sector; State Housing Authority sector; and practitioners with each accumulating five (5 Nr) responses respectively. Of these numbers, thirteen (13 Nr) were completed and returned, representing a response rate of 86.6%. These groups were chosen because they represent those with professional expertise and active involvement in the housing estate post-construction management, and was also purposively sampled, based on those with 10 years and above experience in the area. This decision was further supported by the results of the analysis of the demographic information of the respondents in the main study qualitative and quantitative data collected earlier (Chapter Three). Further, the FHA and SHA represent the only institutions that totally (100.0%) own, control and manage the social (public) housing estates in the Niger Delta, and in Nigeria as a whole as the findings confirmed in Chapter Five of the study. The tenants/residents and housing estate community representatives are not included in the validation process since professional experts opinions from those actively involved in the post-construction management of social(public) housing estates was in this study element and within this research context more prominent and imperative.

The questions were designed with a five point Likert Scale (***see Appendix C,*** page 366 - 370), and sought the respondents' opinion of the proposed framework using the themes: context, contents, completeness; simplicity; clarity; applicability/universality; and usefulness in the management of the social (public) housing estates after their production. These general criteria adopted in the study were as opined by Kwasnicki (1999). Hence, the framework validation analysis, findings and discussion that emerged from the general criterion themes, were as follows:

8.3.1. Framework Context, Content and Completeness

This theme demonstrates and establishes that the framework content is complete within the study context. The quantitative results shown in Table 8.1 indicate that 23% (3 Nr) responded that the framework content is complete as strongly agreed, while 69% (9 Nr) responded that the framework content is complete as agreed and 8% (1 Nr) responded that the framework content is complete as unsure. None responded that the framework content is complete as disagree or strongly disagree. These findings suggest that 92% strongly agreed or agreed that the framework content is complete. The Relative Importance Index (Table 8.1 and Figure 8.4) is 83.0%.

These findings in the study context confirm that the contents of the framework for the sustainable management of social (public) housing estates in the Niger Delta region of Nigeria is complete, as well as indicating that it has good internal consistency.

Table 8.1 Operational Framework Validations via Relative Importance Index (RII) Analysis

Themes	*Strongly Agree = 5*	*Agree = 4*	*Unsure = 3*	*Disagree = 2*	*Strongly Disagree = 1*	*Relative Importance Index (RII) in %*
Framework Context, Content and Completeness	3	9	1	0	0	83.0
Framework Simplicity	5	7	1	0	0	86.0
Framework Clarity	2	11	0	0	0	83.0
Framework Applicability and Universality	4	9	0	0	0	86.0
Framework Usefulness	5	8	0	0	0	88.0

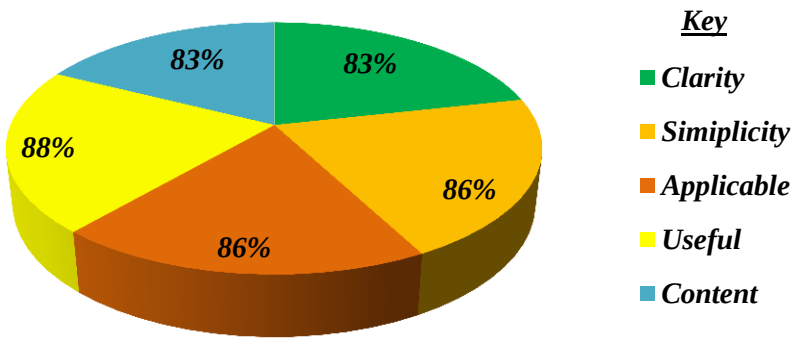

Figure 8.4 Validation of the Operational Framework for the Sustainable Management of Social (Public) Housing Estate after Construction in the Niger Delta of Nigeria

8.3.2. Framework Simplicity

This theme evaluates and demonstrates that the framework is simple to comprehend in the research context. The quantitative results in this theme as indicated in Table 8.1 and Figure 8.4 show that out of the 13 respondents, 39% (5 Nr) responded that the framework is simple as strongly agreed, while 54% (7 Nr) responded as agree and 7% (1 Nr) responded as unsure. None responded as disagree and strongly disagree respectively. These findings are supported by the RII analysis of 86.2%.

These findings confirm that the framework for the sustainable management of social (public) housing estates in the Niger Delta region of Nigeria is simple to use.

8.3.3. Framework Clarity

This theme quantitatively assessed and establishes in the research context, how clear the framework is. The results indicated in Table 8.1 and Figure 8.4, revealed that out of 13 respondents, 15% (2 Nr) responded that the framework clarity was strongly agreed, while 85% (11 Nr) responded that the clarity of the framework was agree and none rated the framework clarity as: unsure; disagree; and strongly disagree. This indicates that 100.0% agreed or strongly agreed that the framework is clear. This is further supported by the findings of the Relative Importance Index (RII) which in its analysis considered the weighted individual responses (the methodology is identical to that of chapter seven previously shown in Table 7.16, page 265) at 83.1%.

These findings confirm that the framework for the sustainable management of social (public) housing estates after their construction is clear, and that the structure and outcomes fulfil the objectives in this study.

8.3.4. Framework Applicability and Universality

This theme evaluates within the research context, if, the framework is applicable and generalizable while retaining the major components. The findings in the quantitative analysis, indicated in Table 8.1, reveal that 31% (4 Nr) responded that the framework is applicable as strongly agreed, while 69% (9 Nr) responded as agree and none rated the framework applicability /universality as: unsure; disagreed; and strongly disagreed. The Relative Importance Index result (Table 8.1 and Figure 8.4) is 86.2%.

These findings confirm the framework in the research context, is appropriate to social (public) estates, such that it should assist to deliver the sustainable post-construction management of social housing estates in the Niger Delta region of Nigeria. It also suggests that even though socio-economic systems are context specific and dynamic, the framework had retained potential universality.

8.3.5. Framework Usefulness

This theme demonstrates that the framework for the sustainable management of social (public) housing estates is useful. In the quantitative results indicated in Table 8.1, 39% (5 Nr) responded that the framework is useful as strongly agreed, while 61% (8 Nr) responded that the framework is useful as agreed and none responded that the framework is useful as unsure; disagree; and strongly disagree. The Relative Importance Index result is 87.70% (Figure 8.4, page 294).

These findings confirm in the research context that the framework is useful to the social (public) housing estates. This is particularly, in their post-construction management for sustainability of the structures and benefits in the Niger Delta region of Nigeria.

The analyses and findings of the validation process of the framework has demonstrated and established that the framework for the sustainability of social (public) housing estates post-construction management and their benefits are: complete; simple to use; clear to use; applicable and universal to use; and useful; in the Niger Delta context. Hence, it is proposed that the framework is validated for adoption in the Niger Delta region and other parts of the Nigerian social (public) housing estates post-construction management for sustainability and has the potential for adoption in other developing countries.

8.4. STEP - BY - STEP APPROACH TO USING THE PROPOSED FRAMEWORK

Figure 2.9b (previously presented in Chapter Two, page 100 and as shown below), illustrates the initial flow diagram of how the social (public) housing estates management and sustainability can be attained, and was further re-examined to emerge as that of Figure 8.5 (step-by-step approach, page 300). It is predicated in using this approach that the first process units are the identification of all the drivers/factors. The second process units are where the factors are assessed, evaluated and chosen for the best practice approach. The third process unit is the implementation of the chosen approach through integration, combined with a decision process unit providing the opportunity to monitor the performance achievement. Go back to re-evaluate the chosen strategy where the answer is NO to achieving the goal/purpose, but, where the answer is YES, then continue with the adopted strategy to the final output and sustain it.

The framework as shown in Figure 8.2 (page 287) confirms that: the input factors; the contents; and the context; through integration have significant relationships to the Sustainability of Social (Public) Housing Estate Management (**SSPHEM**). This is supported by the research findings that the current feeble association between the essential and beneficial sustainability factors; the estate management method; the maintenance management approach; and the relevant stakeholders; where continued would not on their own improve and sustain the social (public) housing estate. The essential and beneficial sustainability factors; appropriate estate management approach; appropriate housing maintenance management; and the relevant stakeholder involvement or inclusion; which at the context level, are to be strongly correlated or interconnected, operate as a multifaceted whole. The study findings confirms that with this, then the sustainability of the social (public) housing estates post-construction management and the intended purpose of their provision would be sustained in the built environment of the Niger Delta region of Nigeria, and could even be extended to other regions of Nigeria and to other developing countries as earlier stated.

The inner layer of the framework requires the identification of the specific estate owner. In this research, this is either the Federal or State Government. However, the research considers that this could be extended to other owners, but this has not been evaluated within this research.

The second layer of the process cycle represents the stage where the: awareness; understanding; and identification; of the various drivers are defined, and the best proactive approach is assessed and selected in layer three. Layer two and three demonstrate how related

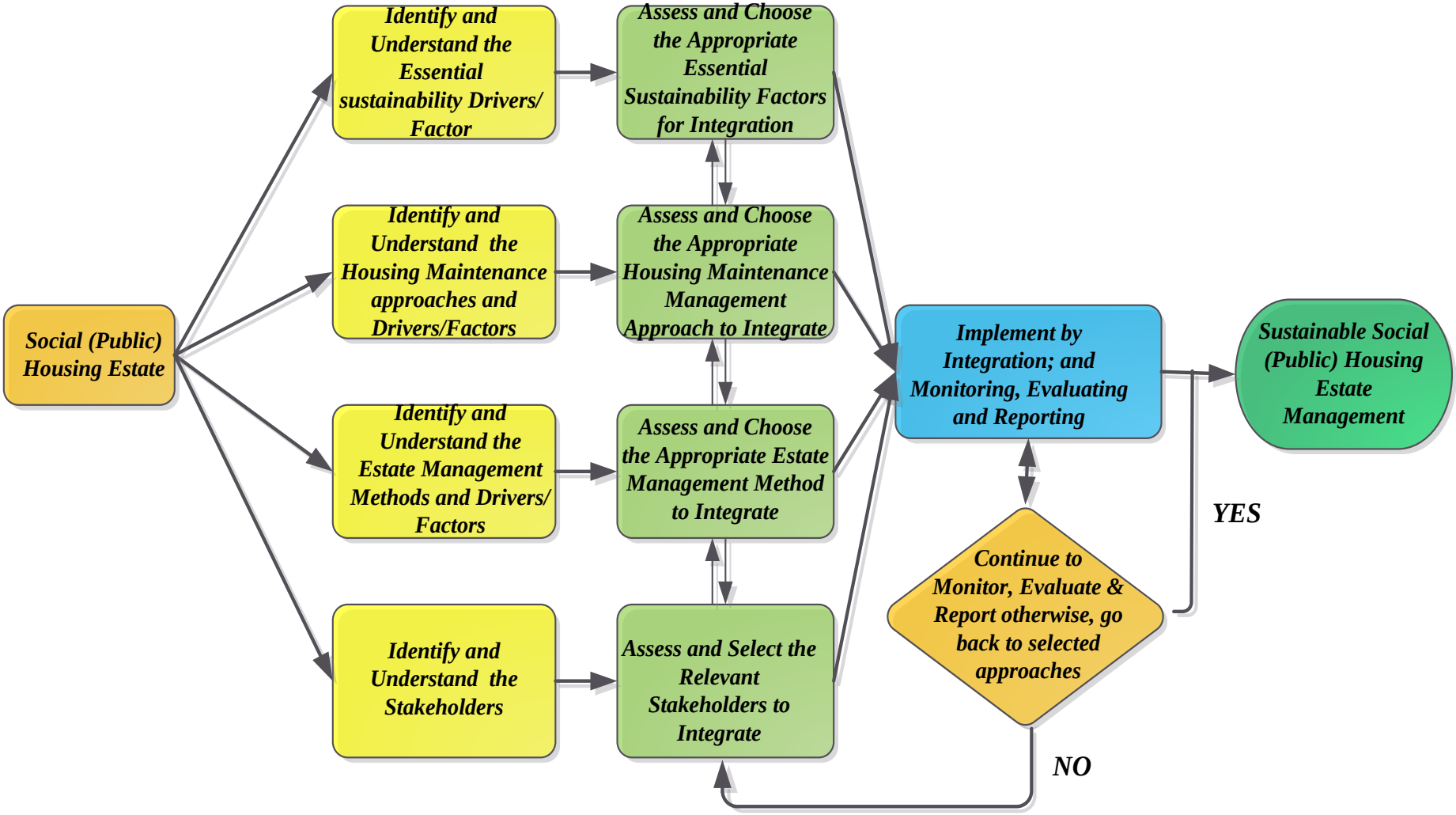

Figure 2.9b. Flow Diagram of Using Implementing the Conceptual Framework

and/or connected, as well as significant these drivers/factors were in the Federal and State social (public) housing estates for their sustainability. The findings of the study confirmed this even though the correlation effects of these components and their present consideration and utilisation were feeble, leading to the currently low or poor conditions of the social (public) housing estates in the Niger Delta region of Nigeria.

The fourth layer represents the implementation phase; and the Monitoring, Evaluating and Reporting (MER) segment. This is the stage where the appropriate estate management approach (partnership estate management approach); appropriate maintenance management approach (planned preventive maintenance management approach); the seven essential and beneficial sustainability factors; and the relevant stakeholders; are brought together and implemented to improve the social (public) housing estates conditions and their benefits to the people and the built environment. The stage also supports the integration of the relationships between the various contributors/drivers and the Sustainability of Social (Public) Housing Estate Management (SSPHEM; which is the '*OUTPUT'* and outer layer of the framework) with a backward and forward arrow.

The fifth layer represents the level where the sustainable management of social (public) housing estates is achieved. It is also the study *OUTPUT* stage which demonstrates that: the essential and beneficial sustainability factors; the appropriate estate management method; the appropriate housing maintenance approach; and the relevant stakeholders; when all successfully integrated and collaborating; achieve the desired sustainability in the social (public) housing estates and their benefits in the Niger Delta of Nigeria.

The framework serves as an enabling and useful instrument for the government (owner), management team, practitioners and others, such as policy and decision-makers, to provide social (public) housing estates management sustainability.

Finally, the framework advocates that given consideration to these process layers, depicting and merging the key drivers in each layer effectively will improve and sustain the service deliverable benefits in social (public) housing estates to all that have a stake therein.

In summary, the framework defines that the first process involves putting into play the various input factors into the context and then to understand, identify, and assess the factors, drivers, and barriers worthy of consideration and integration for the management of social (public) housing estates in a sustainable manner. The proposed framework further proposes that the considered appropriate

factors and drivers need to be implemented by integration within the specific context; while monitoring, evaluation and reporting is a continuous process to ensure that the output is achieved. The conceptual framework suggests that the forward arrow indicates the strategies to be considered for the sustainability of social (public) housing estate post-construction management while the backward arrow reveals the process of a re-consideration and re-integration of the components/segments where the outputs effectiveness does not emerge initially.

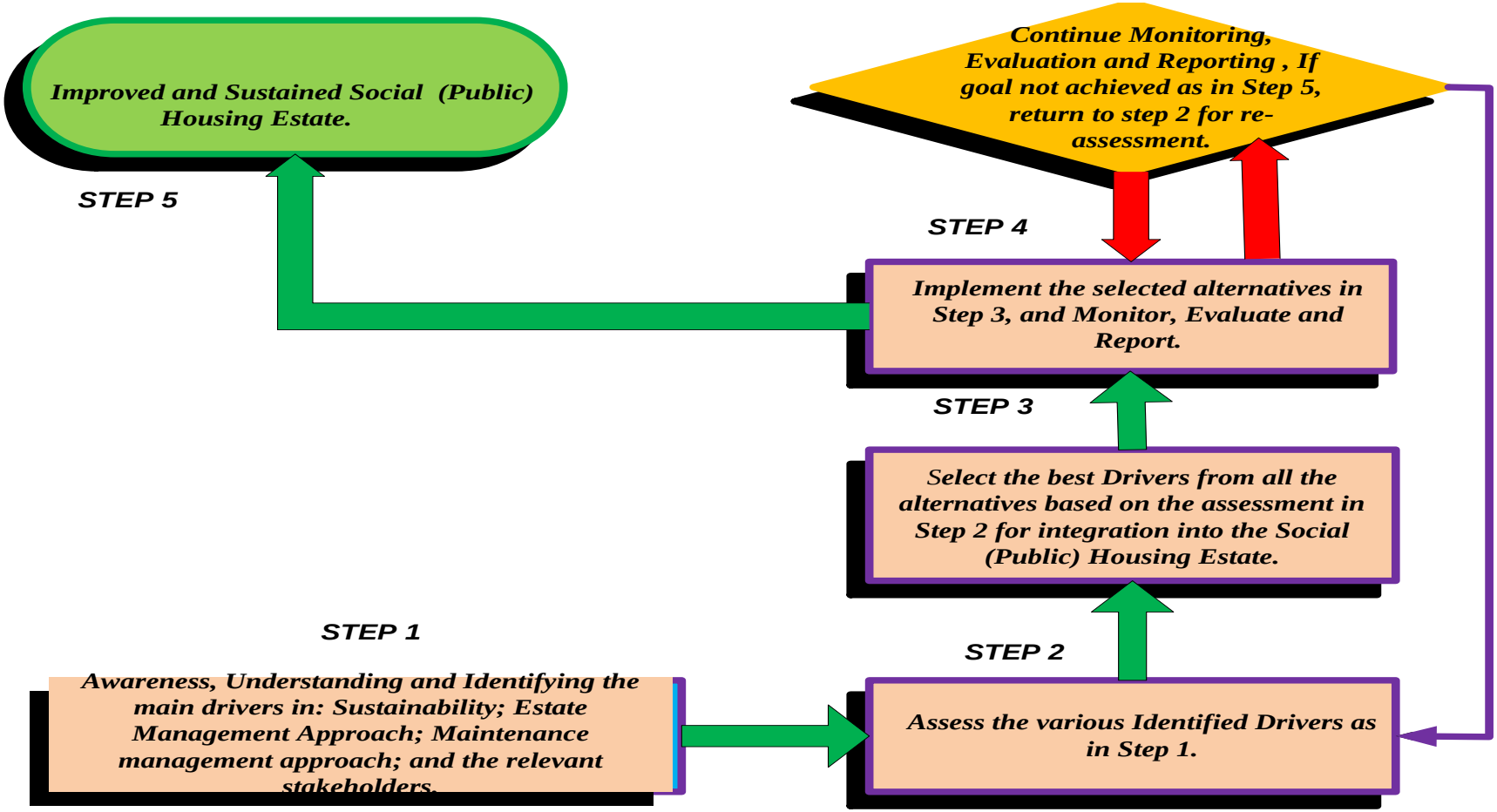

Figure 8.5. Summarised Step - By - Step Approach on Using the Operational Framework

8.5. SUMMARY OF FINDINGS/CHAPTER

This chapter presented the validation of the framework for the sustainable social (public) housing estates management after their construction in the Niger Delta region of Nigeria. The validity of the framework for social (public) housing estates for sustainability was conceptualised and borne through by the empirical findings, supported by the literature review evidence. The chapter also presented the proposed step- by- step approach of how to use the framework and the benefits achieved, to the social (public) housing authorities, policy-decision makers and practitioners in the field. The chapter determined that the framework for the sustainability of social (public) housing estates and their benefits are: complete; simple to use; clear to use; applicable and universal to use; and useful; and is proposed to be generalizable to other regions of Nigeria and developing nations.

The next chapter recapitulates the overall research, following the thesis organisational structure and/or research objectives recognised, as well as the interpretation of the research findings. It also include: the research contributions to knowledge; recommendations; conclusion; and further research opportunities.

CHAPTER 9: RECOMMENDATIONS AND CONCLUSIONS

9.1. INTRODUCTION

This chapter presents the overall summary of the research aim, objectives, and questions, and stating the original contribution of the study to the body of knowledge. This chapter further provides the recommendations and conclusions of the study and the operationalization of the developed SSPHEM framework in current practice with further research opportunities in the field.

The aim of the research was to: ***Develop Conceptual Framework for the Sustainable Management of Social (Public) Housing Estates in the Niger Delta region of Nigeria***.

The five research objectives which this study addressed were as follows:

- Identify the theoretical: estate management principles and approaches;
- Identify the maintenance management approaches; in the social (public) housing estates management practice in the Niger Delta of Nigeria;
- Identifying the underpinning concepts in Stakeholders Management and the Importance/Relevance of their Involvement/Inclusion in Social (Public) Housing Estates Management Practice in the Niger Delta Region of Nigeria;
- Conceptualise sustainability in the context of social (public) housing estates and identify those beneficial sustainability factors for social (public) housing estates post-construction management practice in the Niger Delta Region of Nigeria;
- Developing a Conceptual Framework that would be used for the sustainable management of social (public) housing estates after production in the Niger Delta Region of Nigeria

The six research questions based on the research objectives of the thesis as earlier stated in chapter 1 were as follows:

- What is the current condition and situation of the social (public) housing estates in the Niger Delta?
- How and what estate management method is currently being used in social (public) housing estate post-construction management in the Niger delta region of Nigeria?
- How are the social (public) housing estates currently maintained and why such a maintenance management style?

- How is the stakeholder in social (public) housing estate currently being considered and involved, and why should they be included?
- What are the critical sustainability/sustainable development factors that need to be considered for the sustainability of social housing estates?
- How and of what relevance/importance would the integration of the sustainable factors with appropriate housing maintenance type, stakeholder involvement and estate management method be to the management of social housing estates in the Niger delta region of Nigeria?

9.2. ORIGINAL RESEARCH CONTRIBUTION TO KNOWLEDGE

The critical synthesis of the relevant knowledge and its relationship to the quality of social (public) housing estates provision is a significant contribution to knowledge.

The development of the conceptual framework is also a significant contribution to knowledge.

Synthesising a validated operational framework is the major contribution to knowledge from the research.

Critically analysing current thinking on the management of the social (public) housing estates enabled the operational framework to be developed so that social (public) housing estates units' poor conditions and shortages in the Niger Delta would be eliminated or reduced to a minimum. The operational framework from the study provides the recommendations to follow in order to reduce the problems that cause and bring about issues such as: unoccupied; vandalised; abandoned; incomplete; and especially the poor social (public) housing estates units' conditions; to a minimum. In addition, the framework warrants that the integration of: the beneficial sustainability factors; housing maintenance management practices; effective relevant stakeholder's involvement/inclusion; and appropriate and good estate management methods utilisation is achieved.

Therefore, the sustainable social (public) housing estates post-construction management and the expected improvement in the current social (public) housing estates units' conditions and the benefits to the people will be facilitated.

The study through a critical literature review has provided a significant body of information on: sustainability and its antecedent factors and relevance; housing/building maintenance

management and its significance; stakeholder management and importance; and the estate management principles and best practice. Especially so in the research context of social (public) housing estates, their policies, programmes, provisions and management in Nigeria and in the Niger Delta region. The conclusion of the literature review is that most of the available relevant literature is fragmented and does not offer a strategic way to best practice, and does not currently provide for effective post-construction management of social (public) housing estates to decision makers, practitioners and end user's. These conclusions are supported by the findings of the present study which are in general agreement with the findings of the relevant reviewed literature. Therefore, the study moved forward to develop the integrated operational framework that bridges the gap between theory and practice of the post-construction management of social (public) housing estates in the Niger Delta region of Nigeria.

The study with the developed integration framework contributes to higher quality social (public) housing estates performance in the following context of policy, practice and education:

- A multi-dimensional tool to aid social (public) housing estates management decision making for the management of both existing and future social housing estates in a sustainable manner in practice;
- A best approach and reference document to use in meeting the social (public) housing estate challenges when adopted by policy makers, practitioners;' housing estate authorities and the government for the post-construction management of their social (public) housing estates.
- It provides a future research opportunity to evaluate the impact the framework has made in improving the social housing estates in the Niger Delta region of Nigeria;
- Finally, the achievement of the research aim contributes to, and enables formal courses of the built environment higher education to better reflect the emergent trends in the area of practice related to enhancing and improving the social (public) housing estates units' in a sustainable manner in the Niger Delta region of Nigeria and to other regions of Nigeria.

9.3. RESEARCH RECOMMENDATIONS

In the context of research scholarship, Bryman (2008) opines that it is appreciable to suggest tactics and commendations from the investigation findings. Accordingly, below are a number

of recommendations and submissions offered by the study, grounded from the findings of the inquiry. The renditions are to remedy the current poor state of affairs and deficits of social (public) housing estates units predominantly manifested in the Niger Delta region social (public) housing estate units'. These are:

- The Federal and State Housing Authorities must amend their currently non-defined cultural attitudes of utilising ineffective housing estate management practice approaches/style (i.e. in-house management and unplanned maintenance management) to that of an innovative partnership and planned preventive maintenance management approach. This is predominantly in the circumstances where the social (public) housing estates units and the benefits sustainability after their production is to be attained;

- Social (public) housing estates units' should be post-construction managed by integration of the themes as defined in the developed framework;

- All relevant stakeholders' to the social (public) housing estates, especially the tenants/residents, should be included in the estates units' management and maintenance management. The stakeholders provide indispensable support and information about the condition of structures and other services in the housing estates which would assist in deciding how faults should be managed by the appropriate team. Hence, they must be effectively involved and included in the entire post-construction management processes for sustainability in social (public) housing estate units' and the benefits. This should similarly be achieved through building a sound and solid compact agreement amongst all of the relevant stakeholders identified in this study;

- In order to efficaciously implement this framework, staff capacity development and training programmes should be promoted and encouraged in the Federal and State Housing Authorities. This should assist to provide the necessary: awareness; understanding; identification; assessment strategies; and opportunities; to the relevant management teams of the social (public) housing estates. Further, the FHA and SHA should ensure and promote a best practice post-construction management approach that would enhance the sustainability of the benefits and returns from the social (public) housing estates provided in the Niger Delta;

- The implementation of fines or punishments under the law should be included in the housing estate provision and post-construction management policy formulated for the social (public) housing estate sector in the region and Nigeria as whole. This is to be checked by continuous monitoring, evaluation and reporting processes and would help to ensure that all Housing Authorities comply;

- How good or bad the housing estates are managed is reliant on how much resource is allocated for the post-construction management. Therefore, it is suggested that sufficient financial and other indispensable resources should be allocated and always be available to the housing management authorities to continuously implement any estate management and maintenance management tasks of the social (public) housing estates as quickly as conceivable;

- Issues such as: transparency; accountability; partnership; and good governance; are recommended as a pre-requisite to the implementation of the framework in order to achieve sustainability in the social (public) housing estates units and the benefits. Hence, government, policy-decision makers and practitioners/professionals should ensure that these indispensable underpinning issues are understood, and utilised fully in the social (public) housing estates post-construction management;

- Housing estate community management options should be encouraged in each housing estate environment. The housing estate community management team is to assist with the on-going operations and post-construction management of their respective housing estates projects and service performance, as well as acting as an informant to the housing authority on the all-round conditions of the social (public) housing estates units. By doing so it should strengthen the relationship and improve the partnership amongst the various relevant stakeholders.

9.4. GENERALISATION OF RESEARCH FINDINGS AND RECOMMENDATIONS

According to Saunders, *et. al.*, (2009), Generalisation: *is referred to as ''external validity''*. It is therefore concerned with the extent to which research results are generalizable. This is implying whether research results can be applicable to other research scenarios or not. This is reinforced with the assertions of many researchers such as Saunders, *et. al.,* (2009) that generalisation of research findings which use a case study strategy in its data collection and

analysis is not possible, but, Yin (2009) asserted that generalisation in case study research is always viable and does occur in research work.

For this research, the generalisation of the findings and recommendations is limited within the context of the Niger Delta region of Nigeria. The researcher believed that all the Niger Delta States had virtually the same: cultural norms and values; housing design and management types; environment; overpopulation; under development; and deplorable housing estates units' condition/problems. Further, the study inferred that the responsibilities and functions of the FHA and SHA within the Niger Delta region and Nigeria as a whole is similar and that the data collected from the participants which yielded the research findings and recommendations were representative, convincing, and reliable, and may be replicated to other regions in Nigeria and the nations in the world over.

However, the generalisation of the research findings and recommendations to the other regions of Nigeria, and to the other developing and developed countries, requires a further examination which places the same issues in that context using the findings of this research study. This is because Nigeria, for example, is a country with many cultural and religious settings and beliefs, and it is particularly so where the Federal government through the FHA, for instance, uses the same housing estates units design for housing provision in all regions of Nigeria. The socio-economic, political, legal and environment conditions, and their regulations and operations in the other developing and developed countries may substantially be unlike that of Niger Delta or Nigeria; hence replication of the research findings in the countries of the world over may be improved by further investigation. No part of the proposed entire research methodology, findings and recommendations was selected with the intention of increasing/improving the generalisation of the research results. However, the selected research methodology, findings and recommendations has had no perceived detrimental effect on the generalisation of the results per-se to other regions of Nigeria; developing and developed countries in the world over.

9.5. RESEARCH CONCLUSIONS

The explorative and explanative case study research aims to develop a framework for the sustainable management of social (public) housing estates in the Niger Delta region of Nigeria. The study investigated and demonstrated: the principles and methods of estate management practice; the housing/building maintenance management and it importance; the stakeholders' management, their relevance and importance of involvement/inclusion; and the sustainability concept, its relevance and beneficial factors to social (public) housing estates.

The study further demonstrated the wider implications of these themes relevance and utilisation significant to the social (public) housing estates post-construction management. It is argued that there is the need to manage the social (public) housing estates units' and the benefits in a sustainable manner after their production. Doing so, the sustainability of the social housing estates and the benefits of development would be achieved and maintained in the Niger Delta region of Nigeria.

The study argued that it was needless to provide social (public) housing estates units without an effective post-construction management strategy or framework or future plan on how to manage what has been delivered. This, if allowed to continue would endanger the accessibility and benefits of housing to people. The social (public) housing estates in the Niger Delta are currently in deficit, as well as in deplorable condition due to a lack of effective management and maintenance after their provision. At the same time, the sustainability concept and the precursor beneficial factors are overlooked, and the relevant stakeholders' are ignored in the post-construction management business cases. These failings underscored the substantial need to effectively advance a proactive approach to improve the social (public) housing estates units' situation and the benefits sustainability in the built environment of the Niger Delta region of Nigeria. The research based on the findings in chapters 5, 6, and 7 establishes and concludes as follows:

- Understanding, identifying, assessing and implementing through integration, the appropriate estate management method and housing/building maintenance approach in social (public) housing estates for sustainability is necessary during the post-construction management since it facilitates an improvement in the social (public) housing estates poor conditions;

- The benefits of accessing housing to people including comfort, health, safety, tenure, as well as providing jobs, education etc. are essential;

- The study demonstrated that the in-house estate management method was habitually used by both housing authorities in the current post-construction management of social (public) housing estates, rather than the partnership alternative which offers the best option to manage social development projects such as social (public) housing estates and enhance benefits sustainability.

- The partnership approach offers many advantages in the management of projects before and after provision as compared to the other estate management alternatives;

- The study has demonstrated that the unplanned maintenance management approach is most often implemented in the current maintenance management approach to the social (public) housing estates. The research established that this approach cannot improve social (public) housing estate units 'poor conditions and the benefits sustainability.

- The planned preventive maintenance management approach is a better approach. This approach is based on an evaluation of the other maintenance management alternatives, the planned maintenance approach is more dependable due to its potential rewards in application;

- Fourteen problems/factors in combination have a significant effect and impact on the FHA and SHA in the efforts to provide maintenance management of social housing estates including:
    - Improper evaluation of maintenance task;
    - Maintenance work delays;
    - Inadequate funds;
    - Improper costing of maintenance works;
    - Lack of appropriate knowledge of maintenance staff;
    - Improper schedules of maintenance works;
    - Weather changes;
    - Increasing building materials costs;
    - Inadequate staffing;
    - Lack of monitoring, evaluation and reporting;
    - Rent collection difficulties;
    - Lack of or inaccurate asset registry;
    - Tenants/residents conflicts;
    - Bureaucratic bottle necks;

Above all, the developed conceptual operational framework minimises these problems.

- The current practice by both housing estate authorities in the management of the relevant stakeholder to the social (public) housing estates for sustainability after production is unsatisfactory and ineffective. The FHA and SHA must make a change to their practice by increasing the awareness and the need of involvement of the relevant stakeholders. The relevant stakeholders have definitive, latent and expectant attributes for the successful post-construction management of the social (public) housing estates. This would ensure that the gap in the relationship between the relevant stakeholders and the adopted estate management method and maintenance management approaches is substantially reduced and/or eradicated.

- The best practice option of utilising the framework is proposed to be supported by providing the necessary resources and through supplying workshop and training opportunities to the housing estate post-construction management practitioners/professionals'. This approach would maximise the socio-economic value of the Federal government, State government, the Housing Authorities, the Residents/Tenants, the Practitioners/Professionals and other relevant stakeholders;

- The sustainability of the housing estate remains a process that should ensure that the benefits of the original intent of providing the housing estates are maintained and sustained. This authenticates the relevance and importance of sustainability in public (social) housing estates post-construction management. The research established seven (7) factors as the essential and beneficial sustainability factors to the sustenance of the public (social) housing estates units after construction.

    - Strong policy support factor;
    - Environment factor;
    - External housing estate community perception factor;
    - Finance/economic factor;
    - Management structure factor;
    - Technology factor;
    - Monitoring, evaluation and reporting factor.

- These factors have in combination been demonstrated as having high effects; hence, they must be interlocked and tackled together. This is specifically when the social

(public) housing estates post-construction management efforts is earmarked to achieve the desired benefits and to ensure the sustainability in the built environment;

The developed operational framework addresses these factors.

- The research demonstrates that the operational framework involves integrating: the appropriate estate management method; appropriate maintenance management approach; the relevant stakeholders; and the essential and beneficial sustainability factors; is necessary for the sustainable management of social (public) housing estates after their provision in the Niger Delta region of Nigeria;

- This operational framework becomes an enabling and useful instrument for the government (owner), policy-decision makers, field management team, practicing practitioners/professionals and others relevant actors, to provide the social (public) housing estates sustainability;

- The effective monitoring, evaluation and reporting on the operational framework performance, is necessary for the improvement and sustainability of the original intents of delivering social (public) housing estates units, and the good quality housing estates units' conditions.

Finally, since the study has demonstrated that the social (public) housing estates poor conditions and deficits problems facing the people of the Niger Delta region of Nigeria result principally from a lack of adequate provision for post-construction management. There is an innovative and proactive panorama for addressing the challenges. The research suggests an integration framework (*see Figure 8.2, page 288*) that should be implemented in order to reduce the social (public) housing estates poor condition problems to a minimum, as well as sustaining the benefits in the built environment. The research further infers that the integration framework can be a roadmap approach that would substantially improve the project success, and improve and sustain the contemporary social (public) housing estates. Although, the potential truth in this case is whether the Federal and State Housing Authorities would continue to recognise the potential needs and benefits of accessing good and quality housing estate units' to the people and the economy. Hence, the suggested integration of the operational framework would be unconditionally desirable in social (public) housing estates units' post-construction management for sustainability in the Niger Delta region of Nigeria, other regions of Nigeria, and to other developing countries or in the world over.

9.6. IMPLICATIONS OF THE: EXCLUSIONS; RESTRICTIONS; LIMITATIONS; CONSTRAINTS; AND RESERVATIONS; ON THE RESEARCH RESULTS AND RECOMMENDATIONS

The research acknowledged that the end product of the social housing estates units is not the creation of more housing estates per se, but to ensure that the provided housing estates units' original expected benefits are sustainable. The research excluded the developmental processes so as to allow consistency and dependency in the collection of the required data. But, the study may be improved where the housing estates project development and implementation processes to be investigated to determine whether the unsustainable or prevalent deplorable housing condition in the Nigeria Delta was associated with the development and implementation parameters used. Hence, the study recommends that the development and implementation processes of the social (public) housing estates should be studied further.

The research also excluded investigation of social housing estates in the global perspective, since social housing estates technology and management transfer, was not intended within this study. But, where a country or region has similar challenges to the context of the Niger Delta, then technology and management transfer approach comparisons could have been adopted for the research and may advance the findings of this study to the global world. Therefore, the research recommends further study in this area and may easily permit the replication of the study findings to other developing and developed nations.

The study excluded the sustainability assessment toolkits' and the implication of this area exclusion is that they may be effective in the actual operational evaluation of the proposed framework, which assists to ascertain that the social (public) housing estates post-construction management and the benefits are sustainable. This, the research recommend should be undertaken in the future.

This research is also limited to only the Federal and State housing authority as unit of study in the Niger Delta even though the research established that the totality of the social (public) housing estates in Nigeria are owned and post-construction managed by either FHA or SHA. The study also determined that there are a minimum of 37 FHA offices and 37 State housing Authorities/co-operations in Nigeria with similar responsibilities and functions. The implication to these may be that generalising the findings to other regions may sound irrational but expanding the scope and incorporating more cases can advance the research findings in terms of external validity and reliability. Therefore, the study recommends the investigation of the social (public) housing estates in this perspective in the near future.

The research was also limited in the scarcity of literature regarding robustness within the specific context of sustainable housing estates management practice, which had the implication of the study drawing information with regards to robustness from other related subjects. If, there were sufficient resources and studies in this specific context, the issue of robustness can be a thing of past. The study recommends that more advancement in knowledge in this area is needed for robustness improvements in the research specific context.

9.7. CONCLUDING RESEARCH REFLECTIONS

The research processes have been an exciting experience and a significant learning curve for the researcher. However, the beginning of the research was challenging particularly where the research area was new and resources to the research specific context were rare. A thorough literature review was undertaken to identify the vital areas that became a part of the research focus. This was achieved through review of refereed journals articles, conference papers, books and other relevant resources from the internet, and these provided a deeper understanding of the subject areas. These encompassed identification and gaining an understanding of the current issues and practices on: sustainable development; social/public housing; building maintenance management; estate management principles and methods; and stakeholder's involvement. The greatest task of all was to ensure that the research was filling a gap in the area and contributing to knowledge. The efforts to identify potential participants from the case study sites for the research data collection since it is a mandatory step in the study had not been easy. However, exposure to research methods, involvement in workshops and attending training sessions organised by the University has assisted the study to surpass the challenges, and hence, enriched the experience and knowledge of the researcher. The pleasure in understanding the different research methods and philosophical perspectives through training sessions gave an informed knowledge on which to use for different research scenarios and in this research specific context.

The pragmatic philosophy supported by the use of mixed method procedures in the investigation of the social (public) housing estates situation and the sustainability have assisted in the development of a theoretical approach to social housing studies. This is especially in investigating the housing estate units' challenges in the Niger Delta, Nigeria, developing and developed countries, in both quantitative and qualitative dimensions rather than only on quantitative parameters. This can be a guide to research in similar scenarios and contributes to knowledge and learning; hence it is at the discretion of the educational community in this area within Nigeria or in the developing and developed nations to embrace this considerable development in knowledge.

The study has also reflected that the FHA and SHA have the core responsibilities and functions to be custodians to the social (public) housing estates units and a developer of: knowledge; a promoter of social, economic, political, environmental growth and improvement; and the health, safety, life and properties of the citizens. Therefore, ignoring the proviso of appropriate training and research for the sustainable social housing estate management to the relevant stakeholders as observed in RSH&PD document was not helpful, knowing that experience and knowledge is enhanced by continuous learning and training.

The housing policy should not suffer the shortfall of a lack of implementation, as well as the social housing definition under the ambit of the national housing policy Documents should imbibe all the sustainability features as the current definition is limited in the extent of the inclusion of these features. This, where so implemented should assist to provide that no aspects of the sustainable development parameters are left out, and would ensure that all the social (public) housing estates, both existing ones and the new ones to be provided, were sustainable. Therefore, the Federal, State and Local governments (through the FHA and SHA) and with other meaningful stakeholders should have all hands on deck and support the full implementation of the contents and contexts of the National Housing Policy, as well as in the monitoring, evaluation and reporting.

Project sustainability through the study has reflected that the meaning and the objectives of sustainable development were guaranteed to provide improvements in any context where it is fully applied. The application is no longer limited to a specific circumstance but is applicable and useful in every scenario that requires improvements now and for generations yet unborn.

9.8. OPERATIONALISING SSPHEM FRAMEWORK IN CURRENT PRACTICE AND FURTHER RESEARCH OPPORTUNITIES

The validation of the conceptual operational framework as in (Chapter 8, especially section 8.3, page 290 of this thesis) confirms that the framework was applicable and comprehensive within the context. This section provides a discussion on the operationalisation of the developed SSPHEM framework, as well as the implications of its in practice for the different stakeholders/owners of the Social (Public) Housing Estates in the Niger Delta region of Nigeria.

9.8.1. Operationalising the Developed SSPHEM Framework in Practice

The developed conceptual framework, as earlier stated, had the general purpose to create awareness of the prerequisites to effectively understand, identify, assess/evaluate and select the best practice approaches of: estate management; maintenance management; relevant

stakeholders'; essential and beneficial sustainability factors; and to implement these themes by integration for an improvement in the social (public) housing estate. This avoids/prevents leaving the social (public) housing estates to remain in the currently poor and deplorable conditions as a result of the ineffective approaches utilised by the Federal and State government housing authorities in their post-construction management, which does not support the benefit sustainability. Therefore, in order to operationalise the developed SSPHEM framework, the following strategies/steps are encouraged:

- Users of the framework (FHA and SHA, professionals/contractors in social (public) housing estate post-construction management) should ***'create awareness'*** amongst the various staff involved in the post-construction management processes, that the social (public) housing estates are in poor and deplorable conditions, due to the approaches currently utilised being unsustainable management approaches. Further, since the unsustainable management approaches (in-house estate management and unplanned maintenance management) currently used are not improving the housing estates conditions, changing the management approach/styles for the better in the social (public) housing estate were necessary. The awareness created amongst the FHA and SHA management staff of the unsustainable social (public) housing estates conditions and approaches, would require the FHA and SHA, at the first instance, to identify and understand all the: alternative estate management approaches (in-house; outsource; and partnership); alternative maintenance management approaches (planned preventive; planned corrective, planned reactive; planned refurbishing; and unplanned); the relevant stakeholders (tenants/residents; professionals/contractors; and external housing estate community); and the essential and beneficial sustainability factor supports (such as: policy level; financial/economic; technological level; management/staff structure; local community perceptions, monitoring, evaluation and reporting); for the post-construction management of the social (public) housing estates.

- Users (FHA and SHA management staff and professionals/contractors) of the framework can move to the second stage of assessing all the various available estate management and maintenance management alternatives using the process and principles underlying each as well as especially considering their advantages and disadvantages towards providing sustainable improvements in the social(public) housing estates deplorable conditions and deficits. The present study findings

identified the partnership estate management approach and the planned preventive maintenance management approach as effective and sufficient to promote improvements and benefit sustainability in social (public) housing estates. Further, the various stakeholders are assessed to identify all the relevant stakeholders requiring inclusion and/or involvement. The research findings, however, indicate that apart from the Federal and State Governments that owns the housing estates, other relevant stakeholders, for example: management staff/team; professionals/contractors; tenants/residents and the external housing estate community were to be included and/or involved in the post-construction management and sustainability of the social (public) housing estates. Assessing the essential and beneficial sustainability factors that will in conjunction with the other themes provide sustainable housing estate post-construction management should be a function of all stakeholders. The users after conducting the original assessment review the post-construction management options on ground, as well as reviewing the current legal, political, financial and social issues applicable to the post-construction management option, with all relevant stakeholders, through stakeholder consultation meetings. From the assessment reviews, appropriate integration post-construction management can be based on the agreement for a change from the current in-house, unplanned maintenance management, lack of stakeholder inclusion and lack of the beneficial factors consideration.

- Users' capacity development can then be followed. This is the provision of the necessary training and education to the FHA and SHA management staff/team and the professionals/contractors, sometimes involved in the post-construction management of the social (public) housing estates based on the agreed post-construction management, as required by integration option, to gain the required maximum skill, knowledge and experience for the successful implementation of the framework.

- Users of the framework can implement the framework by bringing all the appropriate selected approaches and beneficial sustainability factors together and involving the relevant stakeholders in all the practices. This should involve designing the integration management approach, procuring for the approach and implement.

- This should be enhanced by continuous monitoring, evaluation and reporting to the relevant stakeholders. The users of the framework, in achieving this in practice, can at first make a selection of the appropriate performance indicators for the monitoring of

the framework. Thereafter, agree the monitoring schedule, allocate roles and responsibilities based on the various components of the selected tools for the monitoring. As well as providing staff development on the use of the monitoring tools and indicators. This can be shadowed by evaluating and reviewing the process and providing information report that can be distributed to the various stakeholders on the performance of the framework when operationalised.

- The framework allows the user to reiterate steps, especially at the implementation step, where the expected integration interaction seems to be showing that the expected output is not achievable. Then, the user is allowed to go back and re-assess the various alternative options and adopt the implementation by integration phase, with continuous monitoring, evaluation and reporting until the desired output is sustainable.

- The framework allows the users to continuously interact, as it allows the reporting of information to all relevant stakeholders/users on the interactions and performance of the integration approach required for sustainability in the social (public) housing estate improvement.

However, the operationalising of the SSPHEM framework may have some implications in the Niger Delta region of Nigerian social (public) housing estate post-construction management sustainability for the Federal and State housing authority, as well as those professionals/contractors engaged in the practice. Though, capacity development of users is required so that they can be fully equipped in operationalising the framework in the current post-construction management practice. The need to identify and understand the need to change the current post-construction management practices that does not support sustainable improvements in the social (public) housing estates deplorable conditions, requires that the users be in a position to partner with other housing management organisations such that, their human and capital resource development can be attained.

The FHA and SHA might be willing to improve the post-construction management performance and the deplorable conditions through partnership collaborations in the social (public) housing estates, yet, should be ready to adopt some cultural, political, economic/financial, and environmental changes. Therefore, the FHA and SHA should be able to attain a high level of absorptive capacity and financial resources so that better terms of conditions of partnerships and the involvement of all the relevant stakeholders'

can be attained in order to properly employ the operation processes of the SSPHEM framework.

Finally, the time taken to operationalise the SSPHEM framework should not be too long so that discouragement in knowledge sharing amongst the relevant stakeholders' in the post-construction management practice approach becomes unconditional. The developed SSPHEM framework can fast track the FHA and SHA post-construction management practice strategy for innovation and can improve the social (public) housing estates poor and deplorable conditions, as well as enhancing the benefits of sustainability. However, further research and development should be encouraged in this area for the achievement of the required sustainability in the social (public) housing estate after its provision.

9.8.2. Further Research Opportunities

Following the appropriate and related literature review findings, supported by the primary research findings, as well as how the developed framework can be operationalised in the current practice, the study has discovered additional fields worth researching in the future. The present study cannot embrace all facets of the subjects/themes within this study, nor examine every possible panorama creditable of examination. Nevertheless, the researcher proposes that the following research fields can be investigated in the future.

The research acknowledged and demonstrated the concept of sustainability and its precursor factors/issues to social (public) housing estates and the benefits sustainability particularly in the Niger Delta region of Nigeria. A further study should be conducted to provide understanding and awareness of the sustainability assessment criteria to be used and to determine whether the final products of the sustainable post-construction management approach adopted in the social (public) housing estates is actually sustainable. This is particularly so where sustainability assessment benchmarks/toolkits are limited. The study, however, opines that the definition of what is sustainable and unsustainable in improvement projects and services still has some elements of ambiguity and discrepancies in the concept literature but researching into this area may assist to resolve the variances.

Furthermore, the research has demonstrated, and at the same time, developed an integrated operational framework which aimed at improving and sustaining the social (public) housing estates units' and the benefits in the Niger Delta region of Nigeria. The study suggests that the framework should be operationally tested in practice. This allows the suggested strategies to be evaluated in line with the main business case, and this encompasses the comparisons

between the framework predictions and how it measures practical social (public) housing estates units' performance.

Similarly, the issue of managing the networks of relationships through sound and solid compact agreement building is proposed to be necessary and a pre-requisite to facilitate the present study. This is especially so where the aim is to proffer innovative best practice and knowledge to: capacity building; supply chains; good governance; and participatory democracy; that would improve sustainability in social (public) housing estates units' after provision. Hence, the research suggests that effective compact agreement building which encompasses the issues should be investigated. This would assist to reveal their potential, relationships and the likely impacts to social (public) housing estates and the benefits after provision in the built environment.

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APPENDIX

Appendix A: Sample of Semi-Structured Interview Questions

A Theoretical Framework for the Sustainable Management of Social (Public) Housing Estates in Nigeria: A Case of the Niger delta.

Background information:

Section A: Demographic Information.

QA1. How long has your authority/company been providing public housing management services in Nigeria or in the Niger delta region?

QA2. Approximately, how many staff work in your authority/company?

QA3. What areas of public housing management is your authority/company experienced in?

QA4. Approximately, how many public housing estates (and houses) are under your management?

QA5. How many on-going public housing estate projects are under your authority /company control?

MAIN INTERVIEW QUESTIONS.

Section B: Estate Management and Maintenance Approaches of Social (Public) Housing Estates Management Practice

QB1. Can you explain in brief the estate management process your authority/ company use in the management of public housing estates?

QB2. Briefly explain the maintenance management approach used by you and your organisation in the post-construction management of the social housing estates?

QB3. Briefly explain the possible reasons why public housing estates appear to be abandoned?

QB4. In brief, state the reasons why public (social) housing estates project may not get completed?

QB5. When managing the public housing estates, what problems/challenges are commonly encountered by your authority/company?

QB6. Briefly, describe your awareness and understanding of a guideline to use in post-construction management of the social (public) housing estates of your organisation?

QB7. Briefly, can you explain the possible impacts of the problems and factors on social housing estates post-construction management process and housing estates conditions?

QB8. Can you briefly explain your awareness and understanding of a housing maintenance standard and where can such be obtained?

QB9. Briefly, how would you describe the housing estates condition and situation in the Niger Delta region of Nigeria?

Section C: Stakeholders Management and Relevance in Social (Public) Housing Estates Management Practices

QC1. Can you identify the stakeholders for public housing estates that you are in control of?

QC2. Briefly describe the stakeholder involvement in your authority/company public housing estates management process?

QC3. Briefly, how would you describe your awareness of involving the stakeholders in the social housing estates post-construction management by the housing authority?

QC4. Can you briefly explain why non-involvement of the relevant stakeholders in the management processes?

QQ5. For you, how would explain the impacts of these relevant stakeholder non-inclusion in the post-construction management efforts and activities?

QQ6. Can you briefly discuss stakeholders relevance in efforts to sustainably post-construction manage the social housing estates?

Section D: Sustainability and Social (public) Housing Estates Management Practice

QD1. Briefly describe how you think the public housing estates can be managed sustainably and especially do you think a framework is need in the current situation?

QD2. For your own opinion, can you describe any issues that can detract from or enhance the sustainability of housing estate management?

QD3. Please, for you and your organisation in the efforts to manage and sustain the housing estates, how would you explain the utilisation and tackling of the essential sustainability issues?

QD4. For your opinion, briefly explain the possible impacts/effects of the essential sustainability issues in the management process?

QD5. For your view, briefly discuss that the integration of the essential sustainability factors in the management process would improve the social housing estates condition?

QD6. Briefly describe the sustainability concept and the issues around it are important and relevant in social (public) housing estates post-construction management?

QD7. For your opinion, how would you describe your level of awareness and understanding of the concept sustainability?

QD8. Briefly, how would you consider the benefit of merging all these issues together for enhanced social housing estates post-construction management, and for sustainability?

QD9. Overall, please kindly comment on any other concern that you feel should be considered in this work.

Thanks for your co-operations.

Appendix B: Sample of Self-Delivery and Collection Questionnaire

in Nigeria: A Case of Niger Delta.

Instruction: Please, kindly read this questions and tick /answer as appropriate, using the scale 1-5 (1= Lowest & 5 = Highest).

Section A: Respondent Demography.

QA.1. What is your Gender?

Male ☐ Female ☐

QA.2. To what age group do you belong?

21-30 ☐ 31-40 ☐ 41- 50 ☐ 51- 60 ☐ Over 60 ☐

QA.3. What level of experience do you have in housing management?

Less than 1year ☐ 1-10 years ☐ 11-20 years ☐ 21-30 years ☐ More than 31 years ☐

QA.4. What company/agency/authority?

Estate community Representative ☐ Tenant/resident ☐ Professionals/Contractors ☐

State Housing &Property Development Authority ☐ Federal Housing Authority ☐

QA.5. Do you consider yourself directly involved in the housing estate management of your organisation?

No directly involved ☐ Negligible ☐ Limited ☐ Adequate ☐ High ☐

Section B: Housing Maintenance Management

QB.6. What housing management does your organisation use for the management of public housing estates?

I Do not Know ☐ Cannot Say ☐ In house estate management ☐ Outsourced estate management ☐ Partnership ☐

QB.7. Who owns' and or built the social housing estates under your management?

I Do Not Know ☐ Cannot Say ☐ Local Government ☐ State Government ☐

Federal Government ☐

QB.8. What housing maintenance types does your organisation adopt in the management of housing estates under your portfolios? *(Please tick all that apply)*

I Do Not Know ☐ Unplanned Maintenance ☐ Reactive Maintenance ☐

Planned corrective Maintenance ☐ Planned preventive Maintenance ☐

QB.9. How would you categories the typical housing maintenance condition on your estates?

Poor ☐ Fair ☐ Satisfactory ☐ Good ☐ Excellent ☐

QB.10. How is the current situation of the housing estates? (*Please, insert an approximate percentage for each category)*

Completed and occupied ☐ Completed and Unoccupied ☐ Incomplete and occupied ☐ Abandoned ☐ Vandalized ☐

QB.11. How would you categorise the effects of the possible reasons listed in the below table to housing estate management?

	No Direct Effect	Negligible Effect	Limited Effect	Adequate Effect	High Effect
Lack of Maintenance Practice					
Inadequate Funds					
Lack of Stakeholder engagement					
Lack of strong policy support					
Lack of Need Assessment					
In accurate project costing & budgeting					
Leadership instability					
Lack of willingness					
Bureaucratic Corruption					

QB.12. Do your organisation normally encounter the problems highlighted in the table during the management process (*Please, tick as appropriate).*

	No Direct encounter	Negligible encounter	Limited encounter	Adequate encounter	High encounter
In adequate funding					
In adequate staffing					
Lack of monitoring					
Tenant Conflicts					
inadequate assets registry					
Rent collection difficulty					

QB.13. How would the listed factors affect your organisation in the housing estate maintenance management? (*Please, tick as appropriate)*

	No Direct effect	Negligible effect	Limited effect	Adequate effect	High effect
Improper evaluation of maintenance task					
Lack of knowledge maintenance staff					
Maintenance work delays					
Improper scheduling of maintenance work					
Inadequate funding					
Improper costing of maintenance work					
Changes in weather					
Increasing cost of materials					

QB.14. Do you or your organisation have/or are aware of maintenance standards conforming the maintenance culture in Nigeria?

I Do Not Know ☐ Negligible ☐ Limited ☐ Adequate ☐ High ☐

Section C: Stakeholders' Involvement in Social Housing Estate Management

QC.15. Does your organisation involve stakeholders including the residents, contractors/professionals, community, etc., in the housing estate management?

I Do Not Know ☐ Negligible ☐ Limited ☐ Adequate ☐ High ☐

QC.16. How would you rate their involvement in the below stages of the housing estate management?

	Planning & Design Stage	**Implementation Stage**	**Post-Construction**	**Monitoring, Evaluation**

											management Stage					& Reporting Stage				
Stakeholder	**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
Government																				
Professionals/ Contractors																				
Management/ Decision Maker																				
Tenant/Resident																				
Estate Community Representative																				

QC.17. How would you evaluate these reasons as shown below as why they are not involving stakeholders?

Reasons	**Scale**				
	1	**2**	**3**	**4**	**5**
Not to be aware of the concepts behind the development					
Not to be well-informed about the project and its benefits					
Not to have access to detailed information contained in the project proposals					
Not to understand some bureaucratic process used in award of housing management project contracts					
To reduce financial expenditure					

QC.18. The government /owner/sponsor itself; professionals/contractor; management/decision makers; tenant/residents; and the estate community representatives are considered as the major stakeholders to the federal, state and local government social (public) housing estates.

How do you consider this statement?

Poor true ☐ fairly true ☐ satisfactorily true ☐ adequately true ☐ highly true ☐

QC.19. Overall, how do you consider the stakeholder involvement level in your housing estate management?

Poor ☐ Fair ☐ Satisfactory ☐ Good ☐ Excellent ☐

QC.20. Overall, how would you consider the relevance of stakeholders involvement in social housing estate management?

I Do Not Know ☐ Negligible ☐ Limited ☐ Adequate ☐ High ☐

QC.21. Overall, please indicate the level of effect the stakeholder in the table below has in managing social housing estates in a sustainable manner? (*Please tick as appropriate*

	No Direct effect	Negligible effect	Limited effect	Adequate effect	High effect
The Government					
The Professionals/consultants					
The Contractors					
The Residents/Tenants					
The larger Community					
The Management/Decision-maker					

<u>Section D: Sustainability Issues in Social Housing Estate Management</u>

QD.22. Are you aware and understand the concept of sustainable development/management and the issues surrounding it?

I Do Not Know ☐ Negligible ☐ Limited ☐ Adequate ☐ High ☐

QD.23. How would you rate your understanding and awareness of the concept and the issues?

Poor ☐ Fair ☐ Satisfactory ☐ Good ☐ Excellent ☐

QD.24. Overall, how do you consider this concept and its issues relevant for effective management of social housing estates?

I Do Not Know ☐ Negligible ☐ Limited ☐ Adequate ☐ High ☐

QC.25. Overall, please indicate the level of effect the following sustainability issues would have in order to manage social housing estates in sustainable manner? (Please tick as appropriate in each box)

	No Direct	**Negligible**	**Limited**	**Adequate**	**High**

	effect	effect	effect	effect	effect
Policy					
Organisational structure/Management					
Level of Technology					
Community Social Perceptions					
Economic/Finance					
Environment					
Monitoring, Evaluating and Reporting					

QD.26. Overall, do you and your organisation fully consider the factors in QD25 above in social housing estate management?

I Do Not Know ☐ Negligible ☐ Limited ☐ Adequate ☐ High ☐

QD.27. Do you think it is necessary to incorporate sustainability within your housing maintenance approach and stakeholder participations for sustainable housing estate management?

I Do Not Know ☐ Negligible ☐ Limited ☐ Adequate ☐ High ☐

QD.28. Overall, do you consider any available framework, template or guidelines that merge sustainability issues, housing maintenance practices and stakeholders involvement for the effective management of social housing estate?

I Do Not Know ☐ Negligible ☐ Limited ☐ Adequate ☐ High ☐

QD.29. Do you think having such a framework for the management of social housing estate in a sustainable manner is vital?

I Do Not Know ☐ Negligible ☐ Limited ☐ Adequate ☐ High ☐

QD.30. Above all, please briefly adds any comments or suggestions about the issues that arose in this research study that will help in the development of a framework.

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Thanks For your participation

Appendix C: Sample of the Conceptual Framework Validation Questionnaire

School of the Built Environment,

The University of Salford,

Room 344, Maxwell Building,

Salford, Greater Manchester,

United Kingdom, M5 4WT.

5th February, 2014.

Dear Sir/Madam

Re: *Sustainable Social (Public) Housing Estate Management Framework in the Niger Delta of Nig eria.*

I am a PhD student at the University of Salford, Greater Manchester, UK and I am currently conducting a questionnaire to validate a research framework titled as above.

This questionnaire aims to gather your responses which will help the researcher to validate the framework that will subsequently be applied for the effective management of social (public) housing e states in a sustainable manner in the Niger delta of Nigeria. This cannot be effectively developed with out your participation; therefore, you are requested to complete this questionnaire. This questionnaire i s estimated to take about 10 minutes to complete.

In order to protect your confidentiality, privacy, dignity and anonymity, your answers will be attached with a unique code that will only be understood and accessed by the researcher. This will be stored in password-protected files in a password-protected computer that only the researcher has access to. Finally, any data provided by you will be destroyed once the degree is achieved. The project has ethical approval for the study protocol from the University of Salford, which provides further assurance.

If you have further questions about your participation, please contact me or my supervisor using the details below.

Thanks and yours sincerely as you assist in this regard,

Mr. Paulinus W. Ihuah ***(****Researcher****)***

Contact email: *p.w.ihuah1@edu.salford.ac.uk;*

Telephone: *+234(0)7039411451, +44(0)7404549304*

Supervisor: Prof. D. Eaton *(BSc, (Hon), MSc, (Dist), PhD, MRICS, FHEA)*

Contact email: *d.eaton@salford.ac.uk:* ***Telephone****: +44(0)161 295 5222.*

Instructions: Please, kindly read these questions and tick /answer as appropriate.

Section A: Key Respondent Information

QA.1 Please kindly specify your level of experience in housing estate post-construction management?

Less than 10 years □ 10-19 years □ 20-29 years □ 30 – 40 Years □ above 41 years □

QA.2 Please specify what type of company/agency/authority you work for or group you belong to?

Estate community Representative□ Tenant/resident□ Professionals/Contractors □

State Housing &Property Development Authority □ Federal Housing Authority □

QA.3 Please state your level of agreement with the statement that you are directly involved in housing estate post-construction management for your organisation?

Strongly Disagree □ Disagree □ Unsure □ Agree □ Strongly Agree □

Section B: Validation of the Framework

This framework is first conceptualised on the idea that building integration amongst sustainability factors, appropriate estate management method, appropriate maintenance management approach and effective stakeholder involvement through a backward and forward process flow, would bring sustainable management of social (public) housing estates. The framework is divided into five main layers/sections. The first section is the **INPUTS/CONTENT (white colour)** layer where the understanding, identification and assessment of the factors/drivers to the problems are achieved. The second layer is the CONTEXT (dark green colour), which in this case is the Federal and State social (public) housing estate. In this layer, the input factors are contextualised to identify and assess the actual drivers/factors to be implemented in the context. The third and fourth layer both represents the **PRACTICE (**pink and purple colour**),** and it comprises two phases: the understanding, identification and assessment process; and the implementation; and monitoring, evaluating and reporting process. At the third phase, understanding, identification and assessment of the drivers in the four main input factors are implemented into the context. The fourth layer is the implementation; and monitoring, evaluating and reporting stage, where the selected drivers implemented and are constantly monitored and evaluated to ensure that the expected output is achieved. As well as reporting promptly on deviations of any driver/factors against the adopted post-construction management strategy. The fifth layer represents the **OUTPUT** segment (green colour), indicating the ‘‘Sustainability of Social (Public) Housing Estate Management’’. This final phase is where all the identified, assessed, implemented and monitored drivers/factors are integrated with expected stronger relationships for sustainability of housing estates condition after

constructions/development. The backward flow indicates the direction to follow should there be any failure of a driver, and this allows the re-identification and re-assessment of such driver before re-implementing it where the expected outputs do not emerge. The forward flow indicates the main direction or path to follow from the input phase/layer to ensure the achievement of the required output. Also, these flows indicate the relationships and collaborations existing within the various layers.

This proposed framework anticipates serving as an enabling and useful instrument for the government (owner), management team, practitioners and others such as policy and decision-makers to provide social (public) housing estate management sustainability. Finally, the proposed conceptual framework suggests that given considerations to these process stages, depicting and merging the key drivers in each layer effectively will improve and sustain the service deliverable returns in social (public) housing estates to all that have a stake.

QB.4 From the developed framework for the Sustainable Management of Social (Public) Housing Estates (SMSPHE) shown on the next page (Figure 1) and with the brief information provided in support of the developed framework above, state your level of agreement with the framework using the themes and the options in each case below.

	Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
The Framework is clear					
The Framework is applicable					
The Framework is simple					
The Framework is Useful					
The Framework Content is complete					

QB.5 Please, kindly add any comments or suggestions on your perceptions of the framework?

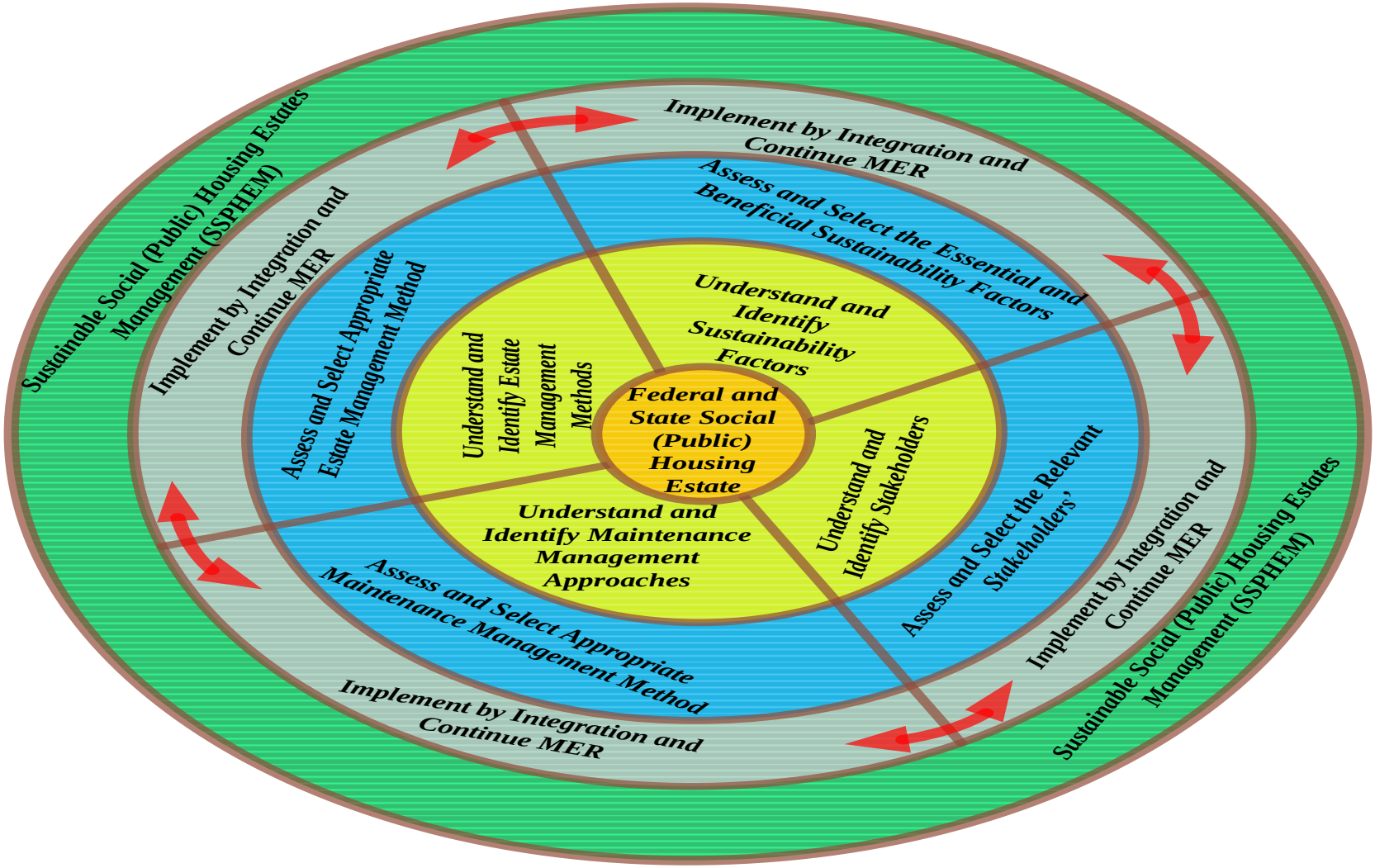

Figure 1. The Proposed Framework

Brief Research Problem, Aim and Objectives

The major problems why the investigation is the prevalent deplorable condition of social(public) housing/building estates because of a lack of post-construction management culture and the essential sustainability factors from namely: social; economic; environment; inactiveness in the current management practices of social (public) housing estates in the Niger Delta region. Therefore, the main aim of the study is to investigate into the social (public) housing estates conditions/situations, their maintenance management approaches and the issues that drive and/or sway sustainability, and finally, develop a framework for the sustainable management of social (public) housing estates in the Niger Delta region of Nigeria for practice implementation. Hence, the research objectives are:

- Identify the estate management principles and approaches used in the management of social (public) housing estates;
- Identify the social (public) housing estates maintenance management types in practices of housing estate management;
- Identify the underpinning concepts in stakeholder's management and the relevance/importance of its inclusion in the management of public housing estates;
- Conceptualise sustainability in the context of social (public) housing estate manageme nt and identify those beneficial sustainability factors for social (public) housing estates;
- Develop a framework that would be used for the sustainable management of social ho using estates after their production in the Niger Delta region of Nigeria**.**

Thanks for your participation

Appendix D: Sample of the Study Ethical Approval Letter

University of Salford MANCHESTER

Academic Audit and Governance Committee

College of Science and Technology Research Ethics Panel

MEMORANDUM

(CST)

To **Paulinus Woka Ihuah and Prof David Eaton**

cc: **Prof Mike Kagioglou, Head of School of SOBE**

From **Nathalie Audren Howarth**, **College Research Support Officer**

Date 14th November 2012

Subject: **Approval of your Project by CST**

Project Title: A Theoretical Framework for the Sustainable Management of Social Housing Estates in Nigeria

REP Reference: **CST 12/30**

Following your responses to the Panel's queries, based on the information you provided, I can confirm that they have no objections on ethical grounds to your project.

If there are any changes to the project and/or its methodology, please inform the Panel as soon as possible.

Regards,

Nathalie Audren Howarth

College Research Support Officer***y***