

Land Administration for Housing Production

By

Muyiwa Elijah AGUNBIADE

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Centre for Spatial Data Infrastructure and Land Administration
Department of Infrastructure Engineering
The University of Melbourne,
Melbourne, Victoria 3010, Australia

Declaration

This is to certify that the thesis comprises only my original work. Parts of this work have been published in refereed journals or refereed conference proceedings as listed in Appendix I

Due acknowledgement has been made in the text to all other materials used. The thesis is less than 100,000 words in length, inclusive of tables, maps, bibliographies and appendices.

Muyiwa Agunbiade

Abstract

The integration of land administration processes and the collaboration of land and housing agencies are considered essential for the effective delivery of developable land for housing production. However, in most countries, housing and land management, policies are usually split between multiple government agencies. Existing literature suggests that the activities of governments' agencies that perform these functions are disparate and lack harmonisation.

This research investigates the inter-relationship across land administration functions (land tenure/registration, land value, land use and land development) and between different levels of government in the management and delivery of land for housing production. It *aims* to develop and evaluate a *Land Administration Integration Framework for Housing* (LAIFH) to improve inter-agency collaboration with a view to help facilitate better land delivery for housing.

The *methods* include the use of a case study approach and focus on the federated case countries of Nigeria and Australia. The research developed: a *Conceptual Framework* that provided a comprehensive approach to understanding the current relationship between land administration and housing production; an Inter-agency Integration Assessment Framework (IIAF) in the context of housing production to assess levels of integration; and finally, a Land Administration Integration Framework for Housing (LAIFH) as a strategy to improve the administration of land and inter-agency integration.

The development of the IIAF was underpinned by the *Conceptual Framework*. The parameters for the development of the IIAF were identified from various past studies. This was in parallel with the structured interviews conducted. By adopting Social Network Analysis (SNA) and Paired Samples (T-Test), this study used the Inter-agency Integration Assessment Framework, as developed, to determine the levels of integration among agencies responsible for land administration. By using Structural Equation Model with Partial-Least Square, as adopted tools, it was possible to verify the reliability of the assessment framework.

The findings, through the application of Inter-agency Integration Assessment Framework, showed that the optimal levels of inter-agency integration varied from one

organisation to the other. This reflected the priority and the interest of each organisation.

Based on the observed level of inter-agency interactions, relative to what was desired, an innovative improvement strategy (Land Administration Integration Framework for Housing) was proposed. The improvement framework included the development of a collaborative process. The collaborative process considered the contextual factors that affect ownership rights and a linked process for determining development rights. The link between the collaborative process and the contextual factor is required to analyse efficient land delivery. The demonstrators: *housing development potential analysis and visualisation*, and the *analysis of development assessment approval* provided, as examples, context for the application and evaluation of the integration framework to facilitate the delivery of land for housing.

The study *concluded* that policies are not sufficiently informed by evidence and that due to disconnect between agencies; policies formulated do not encourage integrated processes among land and housing agencies. The processes did not sufficiently drive the type of data that was collected. It *recommends* that managing land for housing production should follow the principles of evidence-informed policy, policy-based processes and process-driven data.

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Finally and most importantly, I give GOD the glory for HIS grace and mercy upon my life.

List of Acronyms

AHURI	Australians Housing and Urban Research Institute
CLUE	Census of Land Use and Economy
DAF	Development Assessment Forum
DPCD	Department of Planning and Community Development
FaHCSIA	Department of Families, Housing, Community Services and Indigenous Affairs (Australia)
GAA	Growth Areas Authority
GAIC	Growth Area Infrastructure Charges
GNTN	The Global Land Tool Network
IIAF	Inter-agency Integration Assessment Framework
ILC	International Land Coalition
LAIFH	Land Administration Integration Framework for Housing
LAS	Land Administration Systems
LASPPDA	Lagos Ministry of Physical Planning and Urban Development
LEDB	Lagos Executive Development Board
LSDPC	Lagos State Development and Property Corporation
MAV	Municipal Association of Victoria
MPPUD	Ministry of Physical Planning and Urban Development
NAHA	National Affordable Housing Agreement
NGO	Non-Government Organisation
NRAS	National Rental Affordability Scheme
NTDA	New Town Development Authority
ONA	Organisational Network Analysis
PLS	Partial Least Square
PPARS	Planning Permit Activity Reporting System
SDE	Department of Sustainability and Environment
SDI	Spatial Data Infrastructure
SEG	Spatially Enabled Government
SEM	Structural Equation Modelling
SES	Spatially Enabled Society
SHA	State Housing Authority

List of Acronyms

SNA	Social Network Analysis
UDIA	Urban Development Institute of Australia
UN	United Nations
UN HABITAT	United Nations Human Settlements Programme
UNDP	United Nations Development Programme

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Glossary of Terms¹

Affordable housing *	This is the term used to describe housing that are, usually provided by the not-for-profit sector or local government and, considered affordable to extremely low and low to moderate income households.
Autonomous housing production sector	This sector includes the individual developers or builders motivated to develop dwellings in the form of both asset formation and housing services for their exclusive use. It includes the very rich that engages the services of high to medium scale builders. It could also include the extremely poor ones that built houses on an instalment basis, tailored to their tastes and financial capabilities. These groups are generally described as on-site builders.
Betterment	This refers to placing development conditions on land to recover, for public purposes, the increased land value arising from changes to regulation and/or considerable public investment.
Brownfield	This is used to refer to abandoned or under-utilised parts of cities that have outlived their original industrial-era functions. They include but not limited to: factories, scrap yards, old railroad corridors. They are generally owned by a single party, usually government or industry, and of a scale large enough to provide land for redevelopment equivalent to what could be offered by Greenfield sites (Newton, 2010).
Builder	A builder is referred to a home-builder. This can range from small local custom builders to large multinational corporations that build

¹ *These are intended to develop an understanding of concepts and terminologies used in this research. They are adapted from various definitions sourced from published materials, the internet and include closely aligned perspective of scholars in relevant fields.*

^{*} *Extract from Glossary of Terms (Family and community development committee inquiry into the adequacy and future direction s of public housing in Victoria September 2010)*

³ *FIG (1995). The FIG Statement on the Cadastre. Federation of International Surveyors*

homes all over the world.

Cadastre

A cadastre is a parcel based and up-to-date land information system containing a record of interests in land (i.e. rights, restrictions and responsibilities). (FIG 1995)³.

Collaboration

This refers to the willingness of two or more organisations to, *constructively, explore* (synergy) differences in their functions and processes and search for strategies to achieve better outcomes beyond their own limited vision of what is possible. This relationship includes a commitment to mutual relationships or goals, a jointly developed structure and shared responsibility; mutual authority and accountability for success; and sharing of resources and rewards.

It involves a high degree of formality, high resource commitment and inter-agency control Mattessich and Monsey (1992) cited in Townsend and Shelley (2008).

Commodity

An object or service, which has a use value that could be exchanged (for other commodities or money). Conversely, it is not a commodity if it only satisfies people's utility unless they get exchanged.

Cooperation

This means action or activities of agencies shared with inherent intention to benefit others. It involves no formal rules, minimal resources, independent power, and not too clear goals.

Coordination

This refers to harmonious combination or interaction of functions or processes between two or more organisations. It involves few rules, limited resources, some interdependency and clear agency goals.

Developable land

A piece of land should be of physical quality and of appropriate improvements (adequate infrastructure) sufficient to support corresponding physical development to be considered developable

	for housing development. The developers of this land must possess ownership or development rights that are consistent with the provisions of appropriate law(s).
<i>Developer</i>	People who invest in and develop the urban or suburban potentialities of real estate, especially by subdividing the land into lots. They might also be involved in the actual construction and sale of houses (organised sector of housing production). It is contextually synonymous with the builder in most informal settlements that are predominantly autonomous self-built in developing countries.
<i>Development Assessment^{^^}</i>	Development proposals may be for one or more Application Types. Relevant jurisdictional statutory documents determine appropriate decision support system requirements (the assessment track, and Responsible Authorities) for the development Application.
<i>Exchange value</i>	It refers to the utility that could be exchanged in the form of a commodity – an item or service produced (National Housing Supply Council, 2010) and has the quality of being sold or exchanged on the market.
<i>Greenfield</i>	Previously undeveloped land for residential development. This land may be rural, agricultural or unused areas on the outskirts of urban areas.
<i>Greyfield</i>	The ageing, occupied residential tracts of suburbs that are physically, technologically and environmentally obsolescent. Those suburbs that represent failing or undercapitalised real estate assets (Newton, 2010).
<i>Housing affordability[*]</i>	A term that generally refers to the maximum percentage of income which households should be expected to pay for their housing.
<i>Housing production</i>	It involves the processes and methods employed to transform housing production inputs (<i>factors</i>) that include tangible (land, labour and capital) and intangible (policies, ideas, information, managerial skills) into dwellings. The stages involved are: conception and design, <i>land preparation</i> , house construction, and

	marketing.
<i>Housing production cost</i>	This is conceived to include payment made to land acquisition and cost of infrastructure including the actual components of building construction costs.
<i>Integration</i>	As used in this document denotes integration of land management policies, land administration processes and data services across land administration functions and between different levels of government using housing production as a context.
<i>Integration Assessment Framework</i>	A construct of various assessment approaches and methods, general assessment principles, and theories, to structure and organise interactions between land administration functions within the context of overall policy, processes and data services.
<i>Land Administration</i>	‘The processes run by government using the public or private agencies to administer and manage land tenure, land value, land use and land development’ (Williamson et al., 2010).
<i>Land administration functions</i>	These include, land tenure (land rights, registration of title), land value (the collection of revenues on land by government through sales, leasing and taxation, grand rent, stamp duty and compensation in the events of compulsory acquisition), land use (regulations, zoning and control), and land development (implementing land use through the development of infrastructure) (Williamson et al., 2010).
<i>Land delivery</i>	This includes the policies, processes and the institutional arrangements for making developable land parcels (horizontal development) and strata spaces (vertical development) available and accessible for housing production.
<i>Land management</i>	The activities associated with the management of land as a resource to achieve sustainability objectives.
<i>Land management paradigm</i>	A conceptual framework for understanding land administration systems. Especially, the principles and practices relating to the interactions of land administration functions: land tenure, land value, land use and land development.

Land preparation	Processes involved in securing land and development rights for housing production.
Land registration	...‘the official recording of legally recognised interests in land and is usually part of a cadastral system. From a legal perspective a distinction can be made between deeds registration, where the documents filed in the registry are evidence of title, and registration of title, in which the register itself serves as the primary evidence.’(FIG).
Organised housing production sector	These are groups of investors largely motivated by profit making and are constantly determined to get better deals than their competitors. Their engagement in housing construction is usually determined by the minimum profit anticipated from housing development.
Paired-Samples (T-Test)	The Paired-Samples T- Test procedure is used to test the hypothesis of no difference between two variables. In this research the data consist of two measurements taken on the same subject (observed and desired levels of inter-agency integration).
Policy	A policy is a statement of objectives that provides a framework for actions which are consistent with the priorities of the organization or government implementing it (Dalrymple, 2005; Merriam-Webster, 2011).
Silo effect	This nuance expression is generally used for describing the absence of operational reciprocity with other related systems thus impairing seamless interoperability of data and processes with external parties.
Spatially Enabled Government	A spatially enabled government is the one that encourages the application of spatially (location) based information to support <i>evidence-informed policy, policy-based processes and process-driven data.</i>
Specially Enabled Society	A society is spatially enabled when government, people, businesses and advancement in technology support the utilisation of process-driven and spatially referenced data in a way to influence daily

activities and decisions.

Use value

This includes the utility derived from owning a house from the perspective of its want-satisfying ability. Such utility exists outside the formal economy and cannot easily be leveraged in the formal market through exchange. It thus has the quality of being consumed by the owner.

Chapter 1

Research overview

1.1 Introduction

Housing is recognised worldwide as one of the most important basic needs of humankind after food (United Nations, 2009). Its production involves the processes and methods employed to construct or transform tangible inputs (*land*, labour, capital, building materials and physical infrastructure) intangible inputs (*policies*, ideas, *information*) into dwellings (Agbola, 2005; Olatubara, 2007; UN Committee on Economic Social and Cultural Rights (CESCR), 1991).

This chapter presents an overview of the research. It introduces the research by first discussing the overall challenges of land delivery for housing production, especially the integration of land administration functions. In this regard, it identifies and states the overarching research problem and stipulates the research aim. It later outlines the objectives to operationalise the research aim. It also discusses the specific strategy to achieve the research aim by discussing briefly the research methodology. The later part summarises the thesis by presenting a snapshot of different parts especially each of the chapters.

The production of housing is constantly challenged by varieties of natural, economic, technical, social, administrative, political and institutional issues. Among these are rapid population growth and urbanisation emanating from national and international migration, land administration and governance that either preclude or facilitate majority access to developable land. Others include policies, technical specifications, and the desire to satisfy the sustainability objectives stipulated by national and international agencies.

Land as one of the major production factors is essentially indispensable and its administration is thus crucial for adequate housing production. A Land Administration

System (LAS) is the infrastructure for implementing government policies and land management strategies. It is also a means to achieving development objectives and improving the wellbeing of the society. From this perspective, it is not an end in itself but rather a tool for facilitating adequate housing, food security, wealth creation, and environmental management.

For most national jurisdictions, irrespective of the political structure of the country, housing and land management policies, processes and development are usually split between many government agencies. As a result, policy responses are inevitably disjointed – across and between different levels of government. In this regard, government efforts to enable delivery of developable land for infrastructure and housing production through policies and technical specifications are thus greatly hindered by the existing land administration systems (Gurran et al., 2008a; UDIA, 2009). This is considered more pronounced in federated countries (Berry and Williams, 2011).

Consequently, government agencies responsible for each land administration function (land tenure, land value, land use and land development) most often initiate and formulate policies based on their internal norms and functions (Williamson et al., 2010). In addition, land development agencies, within this structure, operate on a ‘*silo*’ (stand-alone) basis and are thus constrained from engaging in a consistent manner to facilitate delivery of land for production of housing. This is manifested in varying degrees of contradictory policy objectives (Egbu et al., 2007; Goodman et al., 2010a).

This study is framed within the proposition that the inadequate integration across land administration functions and between different levels of government impedes land delivery for housing production. The proposition is not to assume that inter-agency integration is linear and unproblematic, or that it is the only problem impeding housing production. This thesis is contextualised and aligned closely to the perspective of Puonti (2004:10), that the necessary starting point for the analysis of inter-agency integration:

‘...is not [just] to take collaboration between authorities as a fact or an ideal model to strive for, but rather to study it as a learning process with tensions and difficulties as well as insights and innovations.’

From this perspective, collaboration between agencies responsible for land administration is not seen as an end but rather a means of facilitating efficiency and

effectiveness of policies, processes, and spatial data infrastructures development among agencies.

Beyond collaboration among land and housing agencies, other broader research issues associated with housing production, underpinning the research, are recognised. These include among others: population increase and demographic characteristics, availability of labour and capital, technology and innovations. This study, however, argues along the perspective of Augustinus (2010) that land is a major input in housing production and that its administration is imperative to increase housing outputs. Other research issues on housing vary from administrative to institutional, local to regional, socio-economic to physical factors. Land delivery and tenure security remains a major consideration especially among the poor countries of the world, which represents a significant proportion of the world's population.

From the conventional perspective, some will argue that *land administration* supports *housing* primarily through the provision of tenure security. This research takes this further and advances a new argument that the role of land administration in providing adequate housing is not only about providing tenure security; it is also about providing an integrated system of land administration processes. In other words, even if tenure is secured, we need linked processes to enable us to produce adequate housing thereby mitigating silo structure.

From this viewpoint, this research proposes a broader perspective that goes beyond the traditional view of land administration as being synonymous with land registration, cadastres, and land information. It acknowledges that land information provides the basis for other considerations but also emphasises that *land management policies* and *land administration process* are significantly important.

This study outworks the land administration *silos* from the perspective of understanding the policies and administrative processes that have a direct influence on housing production. It does not, however, plan to link levels of integration to the actual housing outcomes by undertaking causal link research. In addition, the actual housing construction which includes consideration of technology and the actual utilisation of labour, capital, and building materials are not the focus of this research. They are only considered from the perspective of how land is administered and utilised for housing

production; they are thus peripherally relevant and will complement the central focus of developing integration frameworks and analyses.

1.2 Current issues and challenges

Land delivery for housing is closely embedded in land use planning activities. In this regard, land use planning is considered the hub, connecting other land administration functions. Thus, land use planning activities act strategically to impact and be impacted by the activities of the other land administration functions: land tenure (registration); land value – taxation and charges; and infrastructure and land development. However, given that land administration functions are separated into different institutions in most jurisdictions, managing land use planning activities, has proven to be very challenging.

As presented in the previous studies in most countries, land use planning activities have been a major impediment to land delivery for housing. In Australia, the major issues include: lack of clarity and inconsistency in policies and implementation, problems of access to appropriate data to make informed decisions, and significant focus on operational planning at the expense of strategic planning. These are observed to result in significant delays; with such delays being a significant disincentive to embarking on housing projects (COAG, 2011; DSE, 2003; Goodman et al., 2010a; Gurran et al., 2009; Gurran et al., 2008a; Kelly et al., 2011; National Housing Supply Council, 2010; Productivity Commission, 2011; UDIA, 2011; URBIS, 2010).

Kelly et al. (2011), using five elements of housing supply: *finance, land, planning, infrastructure* and *construction*; reveals varying disincentives to the development of housing in Melbourne and Sydney, by type and location (Figure 1.1).

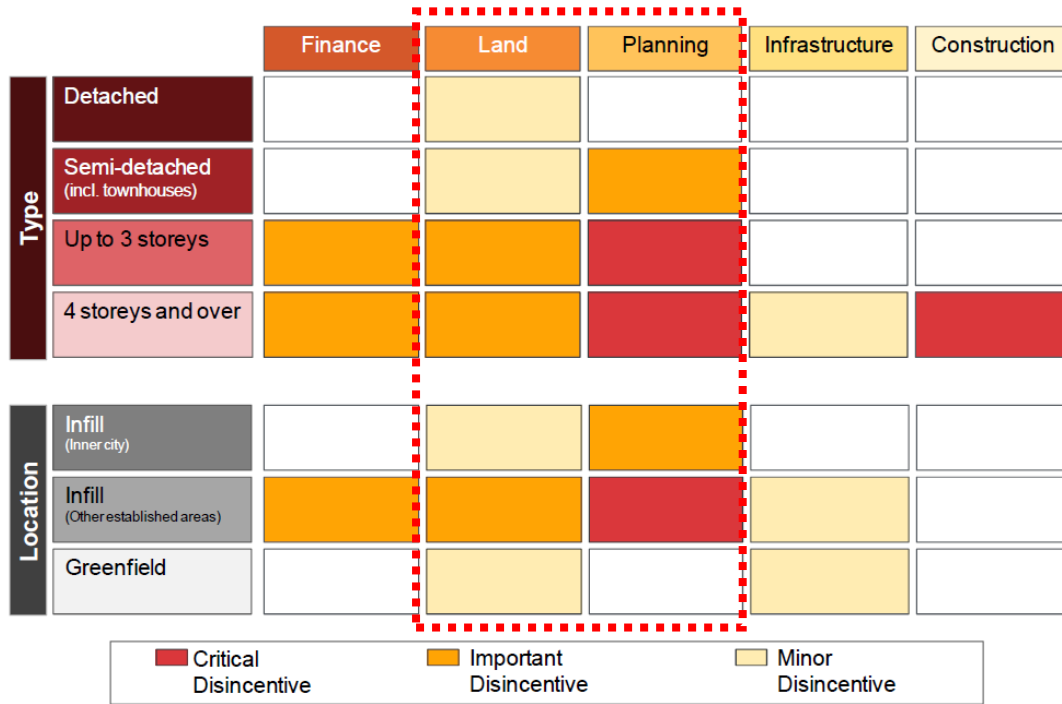


Figure 1.1 – Disincentives to development in Melbourne, by type and location

Source: Kelly et al. (2011)

As shown in Figure 1.1, land and planning activities act as *critical disincentives* to housing development. In making land use decision, considerations are usually given to other land administration functions. Since these other activities are in the critical path of land use planning, it is thus obvious that land use planning failure is a reflection of the failure of the entire network functioning as a connected system.

In the United Kingdom, empirical studies have revealed a strong association between land use planning and higher housing prices (Barker, 2004, 2006; Cheshire, 2009; OECD, 2005). Demographia (2011:4) notes that:

... ‘complex and inefficient local zoning regulations and a slow authorisation process are among the reasons for the rigidity of housing supply, underlying both the trend rise of house prices and their high variability’.

In the United States, Eicher (2008) associates approximately 90 percent of the increase in house prices to land-use regulatory factors in a sample of five Washington municipalities. Cox (2011) and Mildner (2009) note that land on which development is permitted inside the urban growth boundary tended to be 10 times or more valuable per acre as land immediately outside the urban growth boundary.

Similarly in New Zealand, Grimes (2007) blames the loss of housing affordability in Auckland on prescriptive land use policies. Subsequently, Brash (2008:20) posits that:

‘...the affordability of housing is overwhelmingly a function of just one thing, the extent to which governments place artificial restrictions on the supply of residential land’.

Oyesiku (1998) and Mabogunje (2009) observe that in Nigeria, like in most developing countries, the majority of residents grapple with unsecured tenure or lack of occupancy rights in parallel with problems of securing development rights through planning activities.

A striking feature of previous analyses is that a competitive land supply has not been maintained. There is a strong indication that land price differentials and house price trends as shown in the study of Australia, New Zealand, England and United States are directly linked with the lack of competitive land supply. This could also be linked back to the challenges of land use planning. The land use planning challenges also potentially explains inadequate housing and the dominance of slum development in most developing countries.

By considering these issues, it is therefore opined that to make land supply competitive, land use planning should be well integrated with: land ownership or occupancy including title registration; land value and taxation; land subdivision and infrastructure development.

1.3 Statement of research problem

Land as a resource is not currently managed efficiently and effectively as revealed through existing literature. Determining the level of this inefficiency is important in the analysis of housing production. This is based on the assumption that several separate but inter-related issues are involved. Some gaps were identified in the existing literature which is important in explaining some of the issues.

For example, the existing knowledge does not sufficiently consider the direct implications of different dimensions of land administration silos and the inter-agency interactions on housing production. The *silo effect* impacts the way land is managed among agencies, and introduces uncertainties and gaps. The historic institutional silos

thus need to be examined as this presents a major land administration challenge to most jurisdictions and need to be improved.

In addition, related research works on land and housing reveal considerable efforts of scholars on cadastre, tenure and ownership right (De Soto, 1993, 1996; De Soto, 2000; Kaufmann, 1999; Williamson, 2008), some knowledge exists in some countries about the relationship between land value and housing (De Soto, 2000). However, there is insufficient knowledge about how the various functions of land administration might be integrated *theoretically, conceptually, and analytically* within and between jurisdictions (state and national).

To summarise this, it thus means that *the existing ineffective and inefficient integration of agencies across the land administration functions (land tenure, land value, land use and land development) and between different levels of government impedes land delivery for housing production.*

The identification of the research problem culminated in the development of the overarching research question.

1.4 Research question

In order to respond to the research problem, a major research question is derived from the research problem. The question is: how do we improve the integration of land administration across functions (land tenure, land value, land use and land development) and between different levels of government to facilitate land delivery for housing production?

The answer to this question will enhance better understanding of the inter-relationship of land administration functions. This in turn is expected to illuminate the limited integration in land administration (across land administration functions and between different levels of government). Thus, to sharpen the focus of this study, effort is made to answer the *overarching* question by setting the research aim and developing research objectives to operationalise this.

1.5 Research aim

This research investigates the inter-agency integration as it affects the delivery of land for housing production. It aims to *develop and evaluate Land Administration Integration for Housing to improve inter-agency integration across land administration functions and between different levels of government.*

Through:

- i. the development of inter-agency integration assessment framework to measure and compare the depth of integration across land administration functions and breadth of integration between levels of government
- ii. the development of strategies to improve integration.

1.6 Research objectives

The specific objectives to operationising the aim as stated above are:

- i). To develop a conceptual relationships between land administration and housing production
- ii). To establish the need for integration across land administration functions and between different levels of government
- iii). To identify parameters for integrating land administration across functions and between different levels of government and in this regard *develop inter-agency integration assessment framework*
- iv). To analyse the *level of inter-agency integration* in the case study areas using the inter-agency integration assessment framework
- v). Based on the findings, to develop and evaluate a framework for improving inter-agency integration.

These objectives are set to explain the issues involved in assessing the level of inter-agency integration and in developing improvement strategies to facilitate land delivery for housing production. The objectives are predicated on an overarching proposition that *the improved integration of land administration across functions (land tenure, land value, land use and land development) and between different levels of government will facilitate land delivery for housing production.*

1.7 Research methodology

There are many approaches and schools of thought for developing knowledge. As described by Kitchin and Tate (2000), these include: empiricism, positivism, behaviouralism, idealism, realism, postmodernism, and feminism. The field of engineering clearly supports the *positivist approach* (positivism) of knowledge development. Positivist approach uses scientific approaches and requires propositions to be verified. However, applying a purely positivist approach to issues that have social and institutional dimensions is found to be inadequate. Thus, the *realist approach* is considered consistent with the central issues discussed in this research. This involves the investigation of underlying mechanisms and structure of the social relations while still using a scientific approach.

Essentially, this is a design research to develop frameworks for understanding integration of land administration functions to facilitate land delivery for housing. Therefore, given the range of issues in this regard, the mixed methodological approach and a case study framework are considered most desirable. To this end, the identifications, description and classification of parameters (*measured variables*) for assessing levels of integration were developed from synthesis of desktop analysis, extensive review of literature and structured interviews. Following from this, the integration assessment parameters were later converted into an online survey for use as a tool for assessing the levels of land administration integration for housing production. The frameworks developed and research findings utilised the triangulation approach of qualitative and quantitative techniques. Details of this approach are described in more depth in Chapter 4.

1.8 Thesis structure

The thesis is structured into four parts: introduction (research problem, aim, scope, objectives and thesis overview), background chapters (theories, conceptual and analytical framework), the empirical research (development of integration assessment framework, research design and analysis), and the synthesis (discussions and conclusion) as illustrated in Figure 1.2.

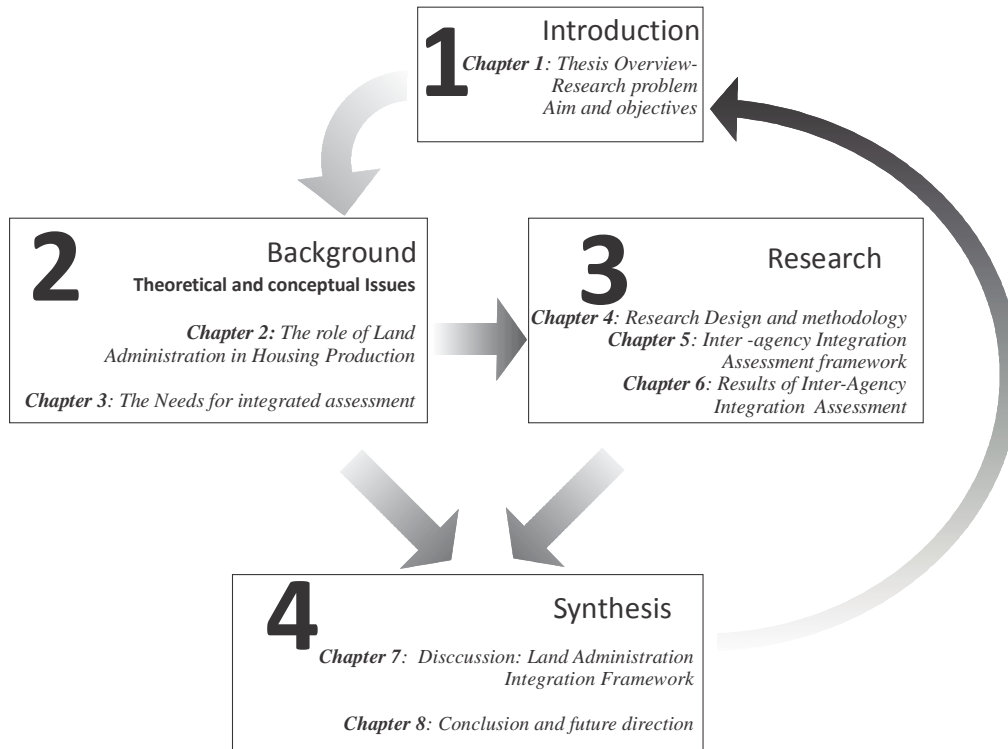


Figure 1.2 –Thesis Structure

1.8.1 Outline of Thesis

Part 1: Introduction

Chapter 1 presents a general overview of research by stating the research problem and the overall research aim. It sets the objectives for achieving the aim and briefly states the significance of the study. It summarises the research methodology and outlines the thesis structure.

Part 2: Background

Chapter 2 focuses on the contemporary role of land administration in housing production and explores the conceptual relationships. The fundamentals of housing are explained and the two major housing production paradigms are discussed to be able to achieve the conceptual relationships. These are structured within the role of government and private sectors. The theory of land administration and the discourse of structure and agencies provide context for exploring people-to-land relationships.

Chapter 3 describes the imperative of integrating land administration across functions and between different levels of government to facilitate land delivery. It starts with the understanding of land administration silos and a description of each of the land

administration functions as they presently operate on *silo* bases. It focuses on the needs for land administration integration and reviews the importance of land administration integration in different national jurisdictions. Then it highlights the current land administration integrating practices. It also evaluates the past initiatives, as well as, the associated challenges. It later discusses the current initiatives by examining some innovative tools for integration. The concluding sections discuss the major limitations of the current initiatives and identify the existing gaps in knowledge. This provides sufficient grounds for the development of national integration assessment framework to facilitate not just data but better integration between processes and policies.

Part 3: Research

Chapter 4 explores the different methodological strategies; research design, and detailed approaches for answering the research questions as discussed in this chapter. It explains the research methods that are used to collect information for the analysis. It briefly explores the research techniques used for the study. It also establishes grounds for the adoption of various choices that are made in the preparation and implementation of data collection, particularly, the selection of study areas (Australia and Nigeria). The justification for the adoption of both qualitative and quantitative methods are considered, along with the reasons for adopting desk study and consulting official documents, as well as, implementing interview methods. Limitations of the methods chosen are also specified.

Chapter 5 centres on the strategy to develop a land administration integration assessment framework based on the observed gaps as outlined in the background chapters. The chapter specifically focuses on identifying and discussing parameters of land administration integration that underpins an integration assessment framework. The integration assessment is intended to measure and compare integration across land administration functions and between different levels of government. The chapter starts by discussing the three main areas of integration (policy, processes and data services) as derived from the land management paradigm. It later identifies, describes and classifies the parameters for assessing the level of integration as derived from significant themes that have emerged from literature and the qualitative study through structured interviews in the case study areas. The later sections focus on a set of processes to measure and compare the depth of integration across land administration functions and

(breadth of integration) between all levels of government within the housing production context. It sets the refinement of parameters, which later resulted in the integration assessment matrix.

Chapter 6 analyses the level of integration across land administration functions and between different levels of government in the case study areas (Nigeria – Lagos and Australia – Melbourne). The analyses are based on the parameters of the *proposed* integration assessment framework as developed in Chapter 6. This is in conjunction with other secondary data collected to provide insights into the processes of the operating land administration systems in the study areas. The discussions also cover the evaluation of integration assessment framework within the scope of the results of empirical analyses. This was also accomplished by the assessment of the benefits and inherent problems of the integration assessment framework. This provides scope for improvement of the framework.

Part 4: Synthesis

Chapter 7 focuses on developing LAIFH. The framework offers strategies to improve integration of policies, processes and data infrastructure to facilitate the delivery of land for housing production. The chapter adopts the syntheses of outcomes of desktop analysis in parallel with the structured interview and online survey. The LAIFH provides a template for improving inter-agency integration in a way that improves linked processes and ensures efficient land delivery. The value of the framework's application is, however, dependent on jurisdictions and local context.

Chapter 8 summarises the research work and assesses it against set objectives, by reflecting on the research problem and suggesting directions for future research. To this end, it closes the loop of the thesis roadmap.

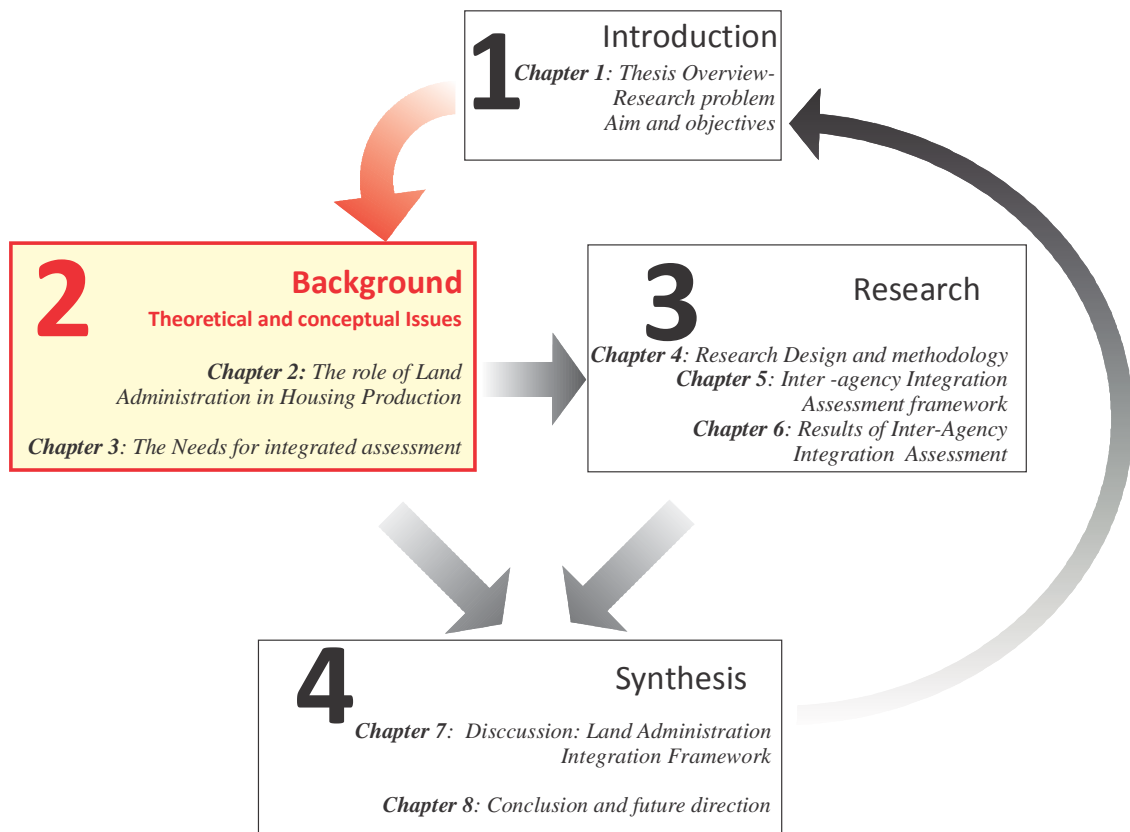
1.9 Chapter summary

This chapter introduced the research and articulated the research problem by stating that the existing ineffective and inefficient integration of agencies across the land administration functions (land tenure, land value, land use and land development) and between different levels of government impedes land delivery for housing production.

As discussed, the overarching aim is to develop and evaluate a Land Administration Integration Framework for housing in order to improve inter-agency integration across land administration functions and between different levels of government. This is intended to facilitate land delivery for housing production. The processes to achieve these were discussed as contained in the research structure and thesis outline.

A clearer understanding of the problem within the context of important variables, current and emerging solutions are now required. Part 2 discusses this in detail.

Part 2



Chapter 2

The role of land administration in housing production

... 'it is not possible to create a robust analytical framework for urban land and shelter delivery without taking into consideration other activities that are integrally linked to and often in the critical path of, the supply of land and shelter. These include... political economy... planning.... governance ...'

- Augustinus (2010:128)

2.1 Introduction

Land is a major component of housing production; its efficient and effective management is thus important. The overall interest is to facilitate production of more dwellings to accommodate increasing population in such a way that housing affordability will be achieved. Land administration is considered one of the important components to achieving this. A better understanding of the conceptual relationship between land administration and housing production is thus important.

This chapter develops context for this research by establishing a conceptual relationship between land administration and housing production. The chapter starts with the general discussion on the fundamentals of housing and housing production processes. It examines all the major components of the processes and focuses on land delivery aspects through a detailed overview of land administration. It later establishes the connections between land administration and housing production.

2.2 Fundamentals of housing: conceptual and theoretical issues

The dynamics of human development from the prehistoric age to modern civilisation have significantly transformed the content, context and concept of housing. The initial view of housing as shelter has given way to a more robust perspective. This includes environmental dimensions in its generic form and encapsulates all systemic environments that influence housing (Olatubara, 2007). From this perspective, and by drawing from the general comment No 4 (1991) on the right to adequate housing (Article 11(1) of the UN covenant), housing includes the physical structure (shelter), legislations, infrastructure, services, and community facilities that are necessary for human wellbeing. In other words, it is the physical structure used as shelter and the environment of that shelter, including equipment and devices needed to achieve physical, mental and social wellbeing.

In this expanded view, housing is both a process and a product (Agbola, 2005). As a process, it is the design, the construction, the materials, the finance, the layout, planning and redevelopment. These involve bringing together and by utilising all the housing production factors within the social, economic and political structure of the society. As a product, it is a tangible entity or structure that includes the amount and allocation of space, resources and facilities. It is a social symbol, economic investment, and means of

protection against weather elements. It impacts the quality of life of occupants and the neighbourhood in which it is located and reflects the social and economic values of the society. From this point of view, Agbola (2005) described housing as a multi-dimensional bundle of uses and a complex product assembled through complicated processes. The multi-dimensionality of housing is exemplified in Beyer (1965), spectrum of knowledge concerning housing (Figure 2.1).

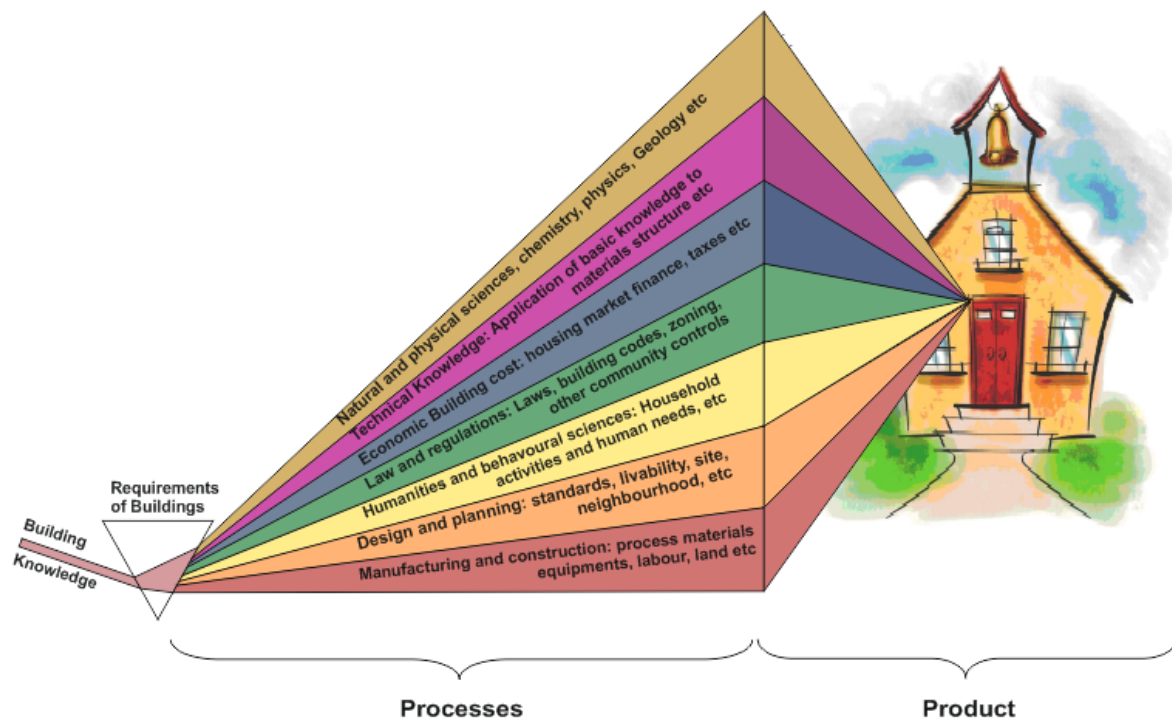


Figure 2.1 – Spectrum of Knowledge Concerning Housing

Source: Adapted from Beyer (1965)

When housing knowledge is passed through the prism of building requirements, the spectrum of processes and activities is revealed. Within the context of this research, housing is viewed both as a process and a product. The significance of the processes in delivering the product is, however, of considerable importance. Housing production processes, as discussed in the subsequent sections, are underpinned by the significance of land administration.

2.2.1 Housing production processes

The examination of housing production processes is important to effectively situate the role of land administration. It is acknowledged that housing production process varies from country to country; though, it generally follows a common pattern (UN-

HABITAT, 2010). Researchers have used different approaches to classify housing production processes using different contexts. Okpala and Aniekwu (1988), classified housing processes as: project conception, project design (including land preparation), and project construction. These classifications are particularly relevant to the developing countries where the majority of dwellings are self-built and owner-occupied. In more developed countries, it could include marketing and sale because of the significance. For better understanding, the processes of producing housing is categorised into four phases: conception and design, land preparation, construction and marketing. This is illustrated in Figure 2.2.



Figure 2.2 – Illustrating housing production processes

Figure 2.2 is intended to build towards a better understanding of the research problem. The logical flow of housing production processes is illustrated by highlighting land preparation for housing production. In progressing this, the next section discusses briefly other aspects of housing production processes starting with conception and design.

A. Conception and design

The whole process of housing production starts with conceiving the idea and progresses to translating this to a tangible object. Conception and design of housing is influenced by a simple logic, but a fundamental principle of *motive*. This principle guides putting into best use the construction inputs or production factors. The motive could either be for asset formation and/or housing services in response to the overall economic systems, political structure and policy focus of a particular jurisdiction. This subsequently determines the mode of production classified, in this thesis, as (formal) organised or

(informal) autonomous sectors. These sectors (formal and informal) in construction processes are conceived and determined by the structure and organisation of the developers and the purpose of production. That is, whether the construction is for investment or consumption (housing services to the developer). Essentially, the return to housing investment is gauged by the profit, social gain or basic need of providing shelter anticipated by the developers.

Closely related to the developer's anticipated gross profit or social gain, in determining the motivation for housing construction, is the anticipated gain by the autonomous developers. This is viewed from the perspective of consuming the use value of the dwelling when it offers the basic needs of shelter. In some developing countries as noted by Agbola (1988), housing construction in addition to its economic significance of having exchange value, is considered to confer some social prestige on its owners suggesting an individual is an eminent member of the community. Although this social value might be difficult to measure; however, the desire to engage in housing construction especially by the autonomous developers is directly motivated by this. The economic consideration seems to be the major motive in most developed countries.

Overall, housing delivery systems in a country is borne out of necessity to provide shelter, mediated by the overriding government housing policies and the desire to promote individual economic development and prosperity. All these are closely related to how land ownership and development rights are granted to builders and developers in what is described as land preparation.

B. Land preparation

All the stages and the activities of making land available for housing production is aptly described here as land preparation. These include: land acquisition and the procurement of development approval (determination of ownership and use rights). The responsibility to facilitate this is laid on the land administration authorities. These authorities include, land registry, Valuer General Office and the municipal councils. These authorities oversee the land administration functions of land tenure, land value, land use and land development. These are contained in the land management paradigm as presented by Enemark (2005).

Set within this framework, six generic stages are identified following from Australian National Housing Supply Council (2010) classifications (Figure 2.3).

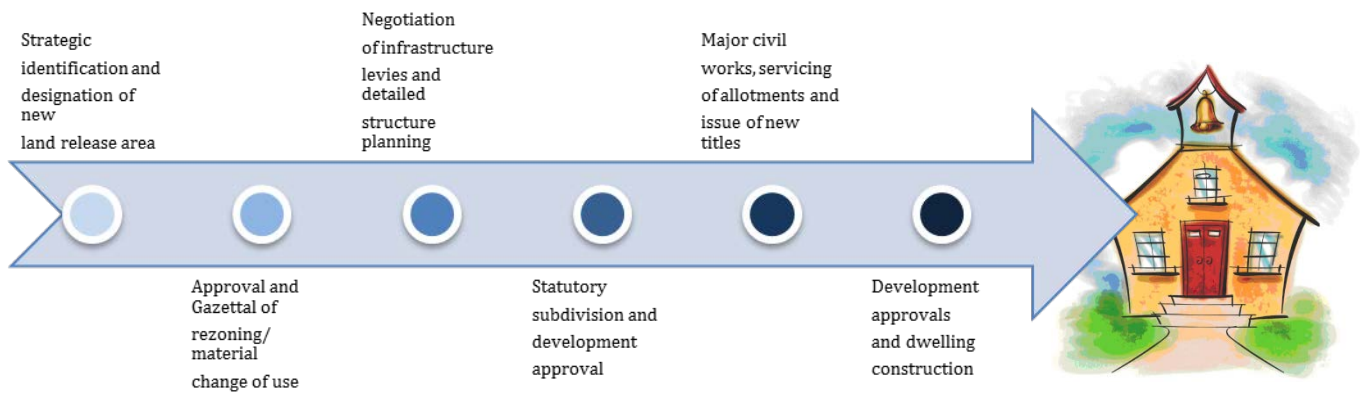


Figure 2.3 – Illustrating land preparation stages for brownfield, greyfield and greenfield
Source: Derived from Australian National Housing Supply Council (2010)

The generic land preparation stages are dependent on the prevailing land administration processes within national jurisdiction. It could be fewer or more than the classifications as illustrated in Figure 2.3. The classification offered here provides a good platform for discussing land preparation. The stages start from the identification and designation of new land that has potential for residential development. This is followed by the administrative and legal procedures to change the previous use to residential. The third stage involves the determination of infrastructure levies and the detailed structure planning. The statutory subdivision, issues of title, major civil work and servicing of allotment follow. The final stage is the development and dwelling construction.

At a different level of analysis and discussion, each of these stages will be further expanded in the subsequent sections and chapters in this thesis. In the meantime, it is important to consider the third component: building construction.

C. Building construction

The third component of housing production processes is the building construction. This involves the deployment of the other production factors other than land. These essentially include inputs such as labour and capital. In a well organised system as argued by Ikejiofor (1997) such strategic inputs as, finance, labour, plant and machineries, should be available in the right proportion at the appropriate time and must have the capability of being harnessed, harmonised and monitored. Most often, this

seems not to be the case. Several of these strategic resources as shown in the literature are inaccessible, unaffordable and therefore are attributable to the inability to supply adequate units of housing required to meet the demand. All these are considered important but as noted in Chapter 1, they are not the focus of this research but are peripherally related to the central focus in the final analysis of housing affordability.

D. Marketing and sales

The final stage is marketing and sales. One of the primary motives of housing production is to make a profit as noted earlier. This is particularly significant where housing markets are dominated by the organised production sector (developed economy); as opposed to the autonomous self-build sector that dominates the market in developing countries.

The anticipated profit must be adequate to motivate housing production. It must therefore be sufficient to allow for cost recovery and eventually, project replicability (Agbola, 2005). Replicability is predicated on the timely disposition of the units produced and this, in turn, is dependent on the affordability level of the housing consumers. The determination of profit through the marketing and sales of houses (the final product) is thus a major component of the production processes.

The preceding discussions, as contained in section 2.2.1 above, underscore the importance of factors that influence land value and consequently affect returns to the overall factors of housing production. Previous studies: Agbola (2004) and Baker (2004) have revealed that land value has a direct bearing on the developers' activities and impact on their anticipated profit targets.

All the processes or stages discussed in this section are contextually situated within the overall housing delivery paradigm.

2.2.2 Housing production paradigm

With regards to housing, there are different paradigms for its production. Hamdi (1995) identified two paradigms in terms of approaches to housing delivery that impact motivation for housing production. These are the provider and the enabling (supporter) paradigms in parallel with the pluralistic approach. These paradigms provide context for governments' past, present and future (intended and reactive) policies. These depend on

the extent and nature of public involvement in housing delivery, as well as the capacity of household in terms of level of household income. The provider paradigm advocates that government essentially should control the production of houses in order to reduce housing shortfall and improve the quality of housing. Conversely, the enabling paradigm does not favour government production of houses, but favours as an alternative, the support of householders, small-scale builders and corporate firm developers by assisting and enhancing their ability and competence to deliver houses or services.

Over the years, it has become increasingly difficult for housing supply to keep pace with demand, and housing conditions continue to worsen in the face of ever increasing urban population in the fast growing cities around the world. It is apparent that a realistic strategy has to be put in place if the housing challenge is to be met. By realising that the state of housing provision is largely inefficient, housing policy emphasis shifted from state provision towards the encouragement of private sector participation in housing development (Israel, 1990; World Bank, 1988). This, as observed by Baken and Linden (1993) and Pugh (1994) could arguably be linked to the changing international response to the global housing challenge resulting largely from the increasing economic liberalism. This view was supported by Ogu and Ogbuozobe (2001). They observed that, provider-oriented approaches, such as public housing strategies, have failed to meet the housing needs of the vulnerable low-income households. These are the sets of people that require accommodation the most. This has resulted in developing countries governments' inability to finance housing schemes.

However, in the opinion of Keivani and Werna (2001) the emphasis on the private market as the major source of housing production is considered misplaced. They argued that the private sector should be supported but should not necessarily be the focus for the production of housing especially in developing countries.

- ***Trends in international policy towards housing provision***

The World Bank's policy on housing identified seven enabling mechanisms (World Bank, 1993). The importance of the Bank's policy is worth noting here because of its influential position in shaping housing policies, also because it reflects economic ideas inherent in contemporary global economic system.

The seven enabling instruments include:

- the rights to own and freely exchange housing through security of tenure
- development of mortgage finance and access to housing finance by the poor
- well targeted, appropriate and rationalised subsidies
- provision of infrastructure for residential land development
- land regulation to ensure housing supply
- development of the building industry by removal of constraints on local production of materials
- competition/institutionalisation of frameworks for coordinating various segments of the housing sector.

These policies as good as they are, they are tailored to the capitalist mode of production. Unfortunately, they are not being adopted or practised especially in some developing countries, particularly with regards to land regulation to ensure housing supply and the development of mortgage finance for the low-income earners. It is important to note that these robust policy strategies should equally be developed toward the domestic or autonomous mode of production.

It is essential to understand government strategies as explained through the housing production paradigms to facilitate housing production. However, the pluralist view as advanced earlier by Turner and Fichter (1972) find relevance in the contemporary time. It provided a broader perspective of housing the poor, especially in some developing countries. From the pluralist perspective, there was a need to see beyond the assistance and direct involvement of government to, fully, understand how the poor housing needs are met. In this regard, it is imperative to engage the capacity of the poor to build cheaper and better homes than what could be offered by government and the corporate establishments (Ahmad, 1989; Turner, 1967; Yeboah, 2005). The interplay of the enabling and provider paradigm in parallel with incremental self-built efforts provided the context for understanding how different categories of builders pursue their strategies to build.

As observed by the UN-HABITAT (2003:40) only very few fortunate countries found themselves well integrated into the flow of global economic systems to facilitate organised production of housing. A significant percentage of humanity today is being relegated to large and ever expanding informal settlements that span great regions of

developing countries. The report observes that: ‘instead of being a focus for growth and prosperity, the cities have become a dumping ground for a surplus population’. As the cities continue to absorb excess population, it becomes increasingly difficult to cope with land management to support the provision of adequate housing. As described by Augustinus (2010). The capacity to, effectively, cope with the production of housing is underpinned by the efficient and effective land administration.

2.3 Land administration

A broad overview of some basic theoretical and conceptual issues as they relate to land administration for housing production is discussed here. This is set within the changing and complex nature of people-to-land relationship. The discussions start with some historical contexts of land administration and its primary components as they relate to housing production. The focus is to understand an overall frame within which a coherent and interrelated body of theory and research might develop that will adequately address housing production processes.

Traditionally, the primary objectives of land administration systems are to support land market operations. However, over the years, the trend has shifted to the development of broader land information infrastructures that has the capacity to support economic development, environmental management and social stability (Williamson, 2001).

From the viewpoint of Dale and McLaughlin (1999:163), land administration is described as:

‘...the process of regulating land and property development and the use of and conversion of land; the gathering of revenues from the land through sales, leasing and taxation; and the resolving of conflicts concerning the ownership [interest in land] and use of the land’.

From this definition, three key attributes of land administration were identified: ownership, value and use. This is diagrammatically expressed in Figure 2.4.

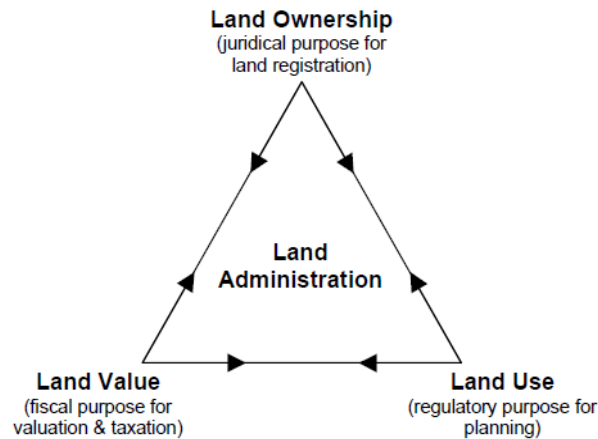


Figure 2.4 – The three key attributes of land
Source: Dale and McLaughlin (1999)

However, the basis of modern land administration theory is the land management paradigm (Figure 2.5) developed by Enemark et al. (2005) which is an improvement on the viewpoint of Dale and McLaughlin (1999). From this perspective, land tenure, value, use and development are essential functions of land administration. Theoretically, the paradigm identifies the principles and processes that define land management; however, in practice, land administration reflect the local cultural and judicial characteristics of each national jurisdiction (Williamson et al., 2010). This indicates the significance of the social and institutional arrangement of each jurisdiction.

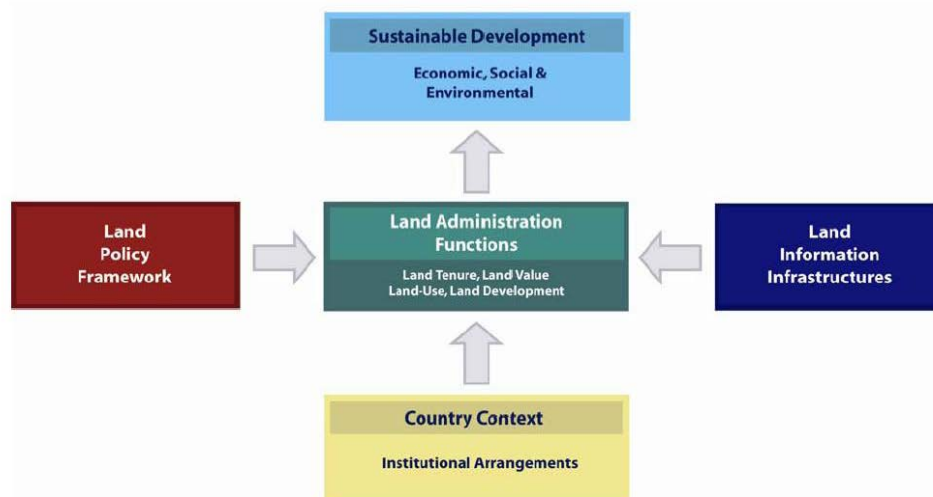


Figure 2.5 – The land management paradigm
Source: Enemark (2005)

This new paradigm provides a better framework for this research. From this perspective, land administration focuses on understanding the operational component of land management paradigm. This is expressed in the range of land administration functions (Figure 2.6) of: land tenure (registration and title), value (property development, and the collection of revenues on land by government through sales, leasing and taxation, grand rent and stamp duty), use (regulations, zoning and control), and development (implementing land use through the development of infrastructure). The main interest is to assess how the interactions within and between these functions mediate effective production of housing. From this perspective, the traditional but narrow focus of land administration centring on cadastral activities in relation to land tenure and land information management is found not to be adequate and thus not consistent with the modern realities of land management.

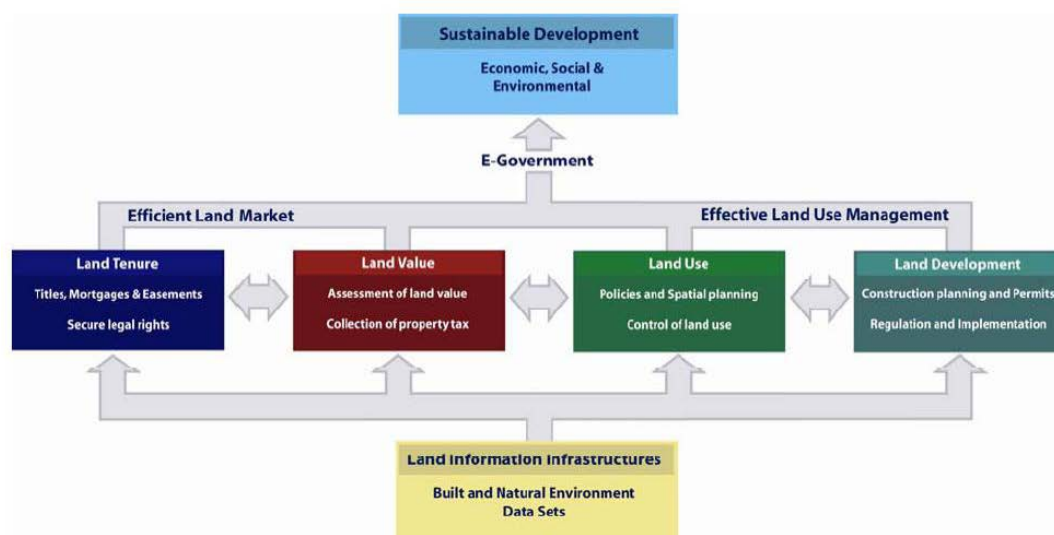


Figure 2.6 – A global perspective of modern land administration systems

Source: Enemark (2005)

The global perspective of land administration focuses on the efficient land market and effective land use management taking into considerations the technical, legal and institutional arrangements. This has continued to influence the current thinking in the global arena and the present initiatives by international organisations to address issues of governance, security of tenure, housing production and the economic empowerment of the people.

Overall, land and housing have multiple dimensions and could only be fully understood from a multi-disciplinary perspective. It will therefore be useful to frame housing production within the perspective of the interrelated disciplines of political economy and economics. This will provide a broader theoretical and general understanding of the overall housing production processes, given the multi-disciplinary nature of housing production inquiries. The next section provides an overview of the major conceptual and theoretical issues.

2.4 Land administration and housing: a multi-faceted engagement

There are many perspectives to understanding the relationships between land administration and housing.

2.4.1 The political economy perspective: land governance

Land governance has become a new way of thinking about land in the recent times. As described by Augustinus (2009:1) 'land governance is all about power and the political economy of land'. Political economy generally draw from the interdisciplinary studies of law, and political science in explaining how political institutions, the political environment, and the economic system of capitalism, socialism and mixed economy influence each other (Maki, 1993). This study is situated within the broad definition of political economy to explain land governance.

From this point of view, Scully (1988:659) observed that political economy is:

‘... an indirect system of governance based on a complex and continually evolving political bargain in which private actors are empowered by a political authority to own and control the use of property for private gain subject to a set of laws and regulations’.

It is all about the rules that govern the relationship of people to land and how this affects activities on land. The rules reflect the power structure of society. These rules are developed in a way to entrench the power relation between individuals, social groups and the entire society. The quality of governance determine to a large degree the efficiency and effectiveness of land administration.

Scholars: Hall (1988), Watson and Hay (2003), Watson (2002), have also used political economy to explore the ways in which persons and groups with common economic interests have used their influences to effect changes beneficial to their interests. This

viewpoint is further elucidated through the insights offered by Adams (2005) while discussing urban planning within the context of market economy. Adams attempted an explanation of the relations and interactions between actors such as landowners, developers, investors, politicians, objectors and the ordinary members of the public as they shaped the development process. Adams argued that planning interventions in developmental projects is also not totally value free.

Notwithstanding its usefulness, the political economy approach has witnessed many shortcomings. The criticisms are well documented in the works of Parkin (1979), Harvey (1982), Cloke et al. (1991), and Giddens (1981).

Despite these criticisms, this study draws on the insights provided by maintaining a strong awareness of the political economy of land in shaping housing production. For example, the changing role of social and political organisations is considered to influence legal and institutional arrangements in respective national jurisdictions. This provides important background in understanding the operation of land release for housing production. Understanding production is generally linked with the classical work of Smith (1776), Ricardo (1817), Marx (Marx, 1867, 1885) and Weber (Weber, 1904) among others. A quick reference is made to the basic logic of production as advanced by these great philosophers through a brief reference to the discussions of theory of production. This becomes important since housing production draws from this perspective. For example, the returns to the production factors as inherent in the principles of production theory affect and motivate housing production.

2.4.2 Economic perspective: the production factors

The production factors (land, labour and capital) are central to the understanding of economic production in general and housing production in particular. The three factors might be treated separately but they are generally mutually dependent.

Regarding this, Ricardo was more critical about how the level and the rate of profit were determined or shared among the production factors. He developed the labour theory of value to overcome the analytical difficulties. This theory was supposed to form the basis of his exposing the mechanism of capitalism (Cohen, 1979). From the marginalist or neoclassical perspective, however, all kinds of income are explained symmetrically. In this regard wages, profits and rents correspond to the input of labour, capital and land

while they are taken to be determined by the forces of demand and supply with regard to the services of each of the production factors (Kurz and Salvadori, 1995). The major utility of these interactions is the understanding of how each of these factors is utilised in housing production. This will help in analysing how participants (landowners, developers, investors, politicians, objectors) pursue their collective, corporate or individual strategies in achieving better outcomes.

The combination of the different perspectives offered by different disciplines provides a holistic view of factors internal or external to land administration as it underpins housing production. These different viewpoints are utilised to conceptualise how the variables of housing production are related. It identifies areas of convergence or overlaps between these related fields. The inter-relationship is illustrated in Figure 2.7.

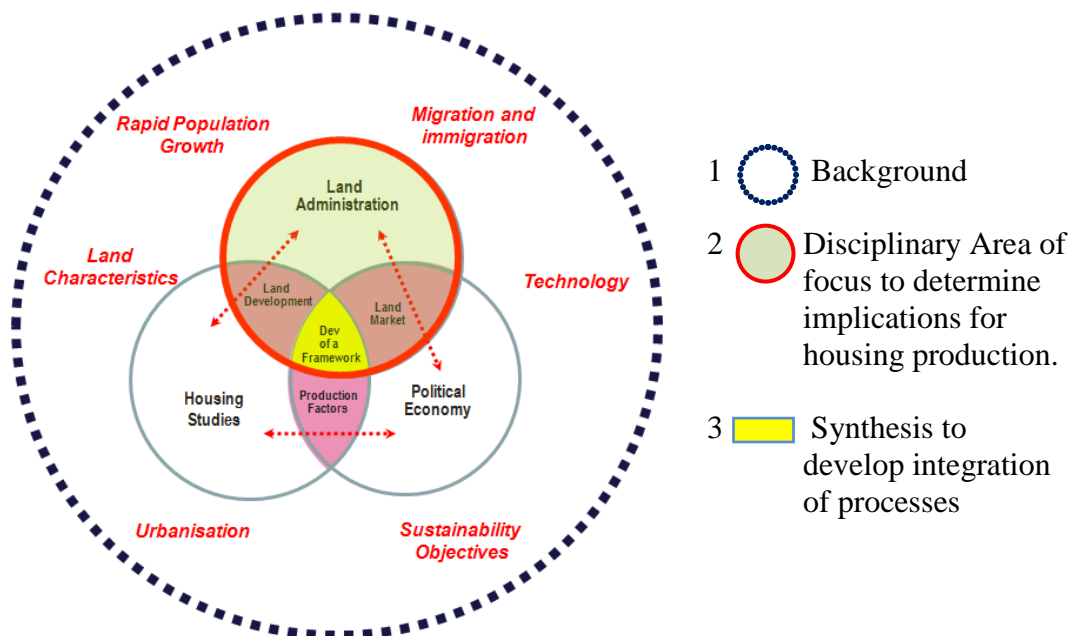


Figure 2.7 Illustrating a multi-disciplinary approach to understanding land delivery

The following discussions will therefore centre on the contemporary role of land administration by concentrating on the areas of convergence between land administration, housing studies and political economy. This is necessary to establish the implications for housing production. At a conceptual level, it provides framework to structure and develop models to improve integration of land administration functions. It also provides a structure to conceptualise the contemporary role of land administration for housing production.

2.5 The contemporary role of land administration in housing production

The preceding sections provided a background structure in the discussion of the contemporary role of land administration in housing. Land administration role in housing production is continually challenged by the changing people-to-land relationship. This is strongly influenced by contemporary social changes induced by the challenges of the new world order. Prominent among these in the recent times are: sustainability objectives (1990s), Millennium Development Goals (2000s), and climate change debates (2010s).

2.5.1 Changing people-to-land relationship

To gain effectively insights into the changing people-to-land relationship, it is imperative to set this against the *structure* and *agency* discourse. This seeks to explore the understanding of the complex interplay of *structure* and *agency* within the context of the interaction between land administration and housing production. Following from this, the seemingly intractable dichotomies between ‘individuals and society’, ‘actors and system’, ‘part and whole’, ‘micro and macro’ could be explained.

Structure-agency relationship is viewed from the perspective of *agency* as being actors or agents (either individual or group) and social *structures* as bureaucracies, institutions, or state. Elder et al. (2003) and Silverstein et al. (2009:578), however, describe *agency* as a principle, whereby ‘individuals construct their own life course through the choices and actions they take within the opportunities and constraints of history and social circumstances’

The debate over the primacy of *structure* or *agency*, however, has generated some basic questions: what is the social world made of? What is a cause and what is an effect? Do social structures determine an individual's behaviour or does human agency rule supreme? As identified by Jary and Jary (1991), there are three possible theoretical positions in response to this line of questioning. Some theorists put forward that what is known as social existence is largely determined by the overall structure of society. The perceived agency of individuals can also mostly be explained by the operation of this structure. Theoretical systems aligned with this view include: structuralism, and some forms of functionalism and Marxism.

Conversely, other theorists stress the capacity of individual 'agents' to construct and reconstruct their worlds. Theoretical systems that have aligned with this view include: methodological individualism (Geoffrey, 2007; Lukes, 1969; O'Neill, 1973; Udéhn, 2001, 2002), social phenomenology (Schütz, 1967; Sokolowski, 2000) and ethnomethodology (Garfinkel, 2003; Heritage, 1984).

A third option belongs to a school of thought that attempts to find a point of balance between the two previous positions (agency and structure). This was achieved through the theory of *structuration*. Structuration as postulated by Giddens (1984) implies that structure is what gives form and shape to social life, but it is not itself the form and shape. Structure exists only in and through the activities of human agents (Giddens, 1987).

Giddens (1984) suggests that it is the repetition of the acts of individual agents which reproduces the structure. This means that there is a social structure – traditions, institutions, moral codes and established ways of doing things; but, it also means that these can be changed when people start to ignore them, replace them, or reproduce them differently.

So people's everyday actions reinforce and reproduce a set of expectations – and it is this set of other people's expectations that make up the 'social forces' and 'social structures' as generally described by the sociologists. As Giddens and Pierson (2007) puts it: 'society only has form, and that form only has effects on people, in so far as structure is produced and reproduced in what people do'.

The discussions of structure and agency underpin the understanding of the changing people-to-land relationship. Ting et al. (1999), purposely, chronicle the phases of the people-to-land relationship along different rates of development of countries. By so doing, they established a cumulative model of the evolution and understanding of land as: wealth, a commodity, a scarce resource and finally as a scarce community resource (Figure 2.8). It could be inferred from this classification that each of the phases in the people-to-land relationship drew out a matching layer of complexity in the relations of people-to-land. For example, from the time when land was functioning as a cadastral systems for the simple purpose of record of ownership and fiscal tool, to a mainstream land markets dispensation and then increasingly to detailed land-use planning, control

and development (Steudler, 2004). In all of these, the continuum of agency-structure inter-relationship is discernible.

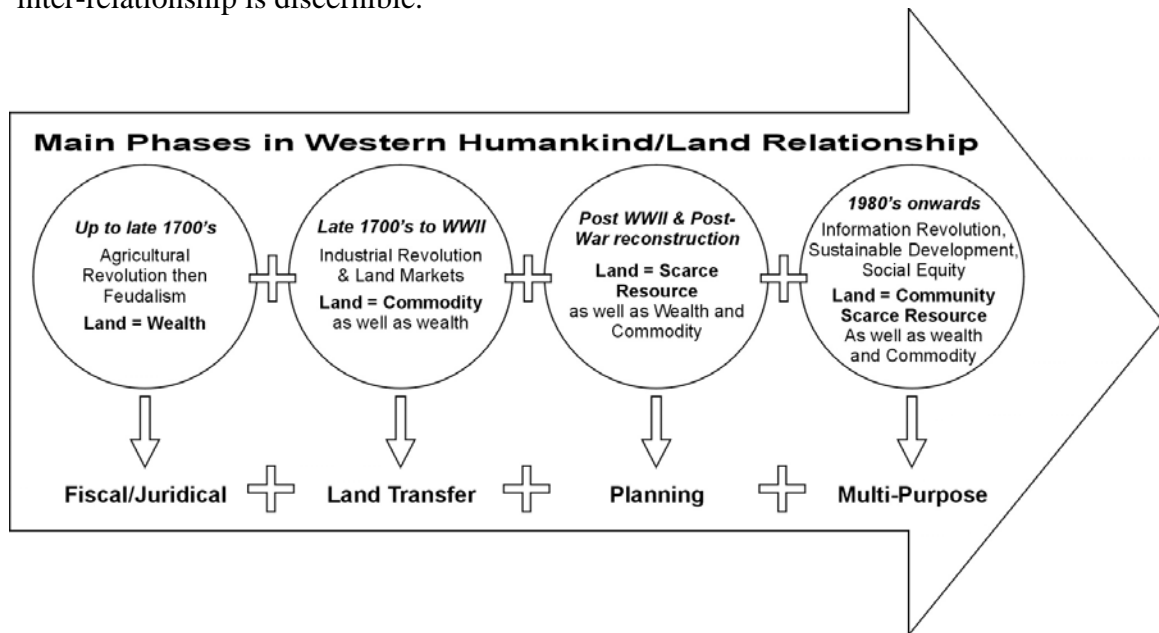


Figure 2.8 Main phases in western people-to-land relationship

Source: Ting et al. (1999)

The situation in the developing countries is slightly different from what is presented in Figure 2.8. Cognitive approaches to land vary significantly reflecting normative perspectives. It also reflects the realities of the spectrum of people-to-land relationships as well as their unique social arrangements (Dale and McLaughlin, 1999; Williamson et al., 2010). The understanding of what the people think about land and the social meaning attached to it, is mediated by political and organisational arrangements. This influences the type of rights and the way land could be utilised.

The colonial interference greatly influenced the trend by creating an intervening circumstance that modified the pattern. The interplay of structure and agency is particularly pronounced in those countries with a history of colonisation. The aftermath of this still prevails till today. For larger part of Africa, up to late 1800s (until the advent of colonisation) land is generally seen as a deity and as a community. In which case, it is seen as a source of all life and the sustenance of all life (Williamson et al., 2010). The colonial lords introduced the commoditisation of land in the early to mid 1900s. These periods witnessed the amalgam of customary practices and the imposed legal registration of land. The continual migration from rural to urban areas, triggered by the expectations of better life, later put pressures on the available developable land and

altered the people-to-land relationship in these jurisdictions. To this end, land scarcity coupled with the outbreak of diseases especially the bubonic plague shifted the focus to better planning of the emerging cities (Oyesiku, 1998).

The multipurpose view of land started gaining ground in the new millennium (2000s) with the gradual introduction of ICT and GIS. Even up till now, most national jurisdictions in the developing countries still struggle to, fully, embrace the potential these offer. At the same time, individual agents struggle to reconcile the traditions, institutions, moral codes, and the established ways of doing things in a continuous way to produce and reproduce the structure. These have been progressed by devising several ingenious strategies of dealing with the prevailing situation. Thus, the issues of access to land and the development rights become very relevant. This is a major theme for this research, especially in comparing the situation in the developed countries with the developing countries. Regarding this, it is important to recognise the country context in designing a strategy to improve integration across land administration functions and between different levels of government. This will put into perspective a range of different strategies depending on the relationship of people-to-land in each specific region in each particular country. This is further discussed in section 3.3. People-to-land relationship as it would appear is considered to impact the development right to improve a piece of land.

2.5.2 Development rights

Development rights are generally described as the ‘legal entitlement to improve a piece of land’⁴. Such rights are conferred by the responsible authority that has the power to regulate land use within a particular jurisdiction. In which case, planning regulations control the type of land use and the land development. Most often, as described by Rodgers (2009:136), ‘planning policy explicitly recognises property rights, and supports the right of property owners to be able to use or develop their land as they judge best’. This is subject to such rights being framed within the overall development guide as well as the prevailing policy framework. Within this context, development rights may be

⁴ <http://www.answers.com/topic/development-rights#ixzz2FVOYBcON>

restricted by a covenant placed in the title to the property or rights may be held by the landowner or exchanged, transferred or sold to another entity. The way and manner in which development right is granted is considered to impact substantially the delivery of land and the linked processes of housing production. It is also considered to have significant implications for settlement pattern and sustainable development.

2.5.3 Sustainable development and Agenda 21

The idea and concept of sustainability was introduced at the Stockholm Conference on the Human Environment in 1972 (EU, 2003). The concept was popularised through the UN-World Commission on Environment and Development by establishing the link between sustainability and the environment in its report '*Our Common Future*' (Brundtland, 1987). The Brundtland report was endorsed at the '*The Earth Summit*' and culminated in the production of the Agenda 21 publication which outlined modern day sustainability objectives (Robinson, 1992). Ever since, it has been the guiding principle shaping major land management decision making. Over 300 deferent descriptions and definitions of sustainable development have been offered (DiSano, 1999). In all of these, the central theme which aligns with those of this research is that growth occurring in the present must not compromise the ability of future generations to meet their own needs. From this perspective, it is considered inappropriate to sell off, use up and consume all of our current stock of land without adequate consideration of the impact this will have on present and future generation.

Sustainable development is anchored on three principles; now popularly referred to as the triple-bottom sustainability objectives. These are: economic development, environmental management and social inclusion. Framed within these three objectives are: the desire to achieve intra and inter-generational equity; the elimination of poverty and deprivation; the integration of economics and environment in decision making (DiSano, 1999). The main utility of sustainability approach is not just in the improvement of the individual principle but is situated in the ability to interlink and interconnect issues and challenges in an integrated way.

In line with this, Byrne (1994) observes that Agenda 21 represents the key comprehensive international convention in the annals of United Nations systems. The agenda outlines international responsibilities for land and housing. It could be inferred

that UN-HABITAT, draws its mandate from this agenda, given its main interests on adequate housing for all. In regard to land and shelter the agenda states:

‘Access to land and legal security of tenure are strategic prerequisites for the provision of adequate shelter for all and for the development of sustainable human settlements ... While recognizing the existence of different national laws and/or systems of land tenure, Governments at the appropriate levels, including local authorities, should nevertheless strive to remove all possible obstacles that may hamper equitable access to land...’ (Habitat Agenda 1996:75).

Other key areas of interest of Agenda 21 are concerned with issues regarding access to information, development of appropriate data bases, and exchange of information. Others include, land use and transportation planning, legal frameworks and land tenure. Over the years, the United Nations Centre for Human Settlements (UN-HABITAT, 1993) has promoted sustainable human settlements development by highlighting the importance of appropriate land management practices in promoting access to land especially in urban areas.

This section raises fundamental issues for this research. First, how do we harness the utility of sustainable development principles in a way to, comprehensively, assess the challenges that are important to facilitate land delivery for housing? Second, what scope has sustainable development for broader societal issues highlighted by the Millennium Development Goals, especially in the management of cities? Third, how will these principles encourage good land governance that focus on people oriented tools: capacity building, engagement and participation? The reviews as contained in the previous sections provide the initial insights. The details are further discussed in Chapter 6 and 7.

2.5.4 Good governance and security of tenure

Good urban governance has become a new way of thinking about land in the last few years because of peculiarity of leadership issues especially in developing countries. There are a series of allegations of fraud and corruption as being the bane of development in these countries. Essentially, land governance is about power and the political economy of land. The way this is structured will determine the power relations between and among individuals and social groups.

To be able to effectively determine this power relation, several issues are raised by Food and Agricultural Organisation and UN-HABITAT as presented by Augustinus (2009:10), that require critical analysis, which substantially align with the thinking of this research. These include among others: ‘who benefits from the current legal and policy framework for land? What are the motivations for the different stakeholders, and what constraints do they face? Who influences the way in which decisions about land are made? How are decisions enforced? What alternative do the less powerful members of society have?’ The land administration assessment framework developed in Chapter 5 is intended to explore the interactions between all the key players in land delivery and land accessibility for housing. The data analyses in Chapter 6 and the discussions in Chapter 7 answer most of these questions.

2.5.5 Titling and Poverty Eradication – Millennium Development Goal

Land title and an efficient land market generally facilitate housing credit and investment leading to greater productivity and economic growth and hence to higher incomes and less poverty (United Nations, 2005). This argument is generating ongoing debate in the international fora. This is producing a common theme with regard to secure land and property rights as being necessary conditions for improved housing delivery, poverty alleviation and slum formation reduction. This is based on the assumption that individualised titles will enable people to access credit and this will empower them to invest in the improvements of their land and property. As described by De Soto (2000), it is also assumed that this will encourage the use of ‘dead capital’ as well as, attracting external investment thereby leading to economic growth. Other assumptions are: that it will reduce transaction costs for property transfers; promote more efficient land and property markets; and that properties will realise their full market value.

In addition, it is assumed that it will increase government revenues for funding public services and facilities; and that by designing and implementing pro-poor land policies will ensure sustainable development, and help in realising the Millennium Development Goals. This has led to the two global campaigns of secured tenure and good urban governance by the United Nations in 1999. The recently established UN Global Tool Network and the High-Level Commission on the Legal Empowerment of the Poor have given added drive to the discussions and initiatives on property rights as a way of improving security of tenure for the poor (Payne and Tehrani, 2005).

The ongoing debates could be closely traced to the previous arguments of De Soto. He had earlier emphasised the importance of determining 'who owns what' and what is essential to formalise property rights promptly, extensively and economically. He asserts that '...until property formalisation is put at the top of the developing world's Agenda, the long-run prospects for economic reform will remain weak' (De Soto, 1993). These arguments were taken further in an article by McLaughlin and De Soto (1994) and De Soto (2000).

However, there have been tremendous criticisms in regard to De Soto ideas and claims as exemplified in the works of (Fernandes, 2002; Home, 2004; Razavi, 2003; Reerink and Gelder, 2010; Royston, 2004; Varley, 2002). Their research findings have suggested that titling may not necessarily increase investment and productivity.

Payne and Tehrani (2005:3) argue that there is: '... evidence from Asia, Africa and Latin America, which indicates that this process has led instead to increases in landlessness, inequalities in land, the accumulation of land by elites and the erosion of user rights for the poorest and most marginal groups'. This, they opined might be due to the processes of formal registration and titling which often involve excessive financial and administrative burdens.

Payne (2002), based on the study of 16 countries, earlier offered other alternatives to land titling as a way of improving land security. Among these are: community land trusts as it is being practised in a number of communities in Kenya; the certificate of rights in Botswana; communal land rental in Thailand; the adaptations of customary tenure in parts of sub-Saharan Africa (especially in Mozambique and Ghana); the concession of the real right to use land in Brazil's favelas; and the certificate of comfort available to squatters on public land in Trinidad, which protects large numbers of squatters from eviction in Port of Spain.

Payne and Tehran (2005) argue that the alternative forms of tenure might not preclude economic development or local investment and can even be seen as more secured than legal markets by local people. This is a good theme to pick up in this research especially with regards to developing countries.

Despite the criticisms outlined above, significant progress has been made in developing methodologies for assessing tenure security including frequency of disputes and perceptions of security (Reerink and Gelder, 2010). This research draws on the insights provided by maintaining a strong awareness of the political and economic context shaping access to land, measured in terms of land policy; interactions of land administration functions; and the spatial data infrastructures. All these appear to affect land availability, affordability, security and ease of transactions and have overall implications for housing production.

2.6 Land administration for housing production: conceptual relationships

It is important to establish the link between land administration and housing production. This involves bringing together different theories, concepts and issues initially discussed. Within the context of how housing production is organised, land preparation is a major component. Essential aspects are: land policies, land administration and spatial data infrastructure. Given the importance of managing these complex interactions, it is argued in this thesis that the integration of land administration functions is significantly important to facilitate improved housing production.

The way this plays out is mediated by each country context and impacted how housing production is organised. Figure 2.9 illustrates the two directional links between land administration and housing production.

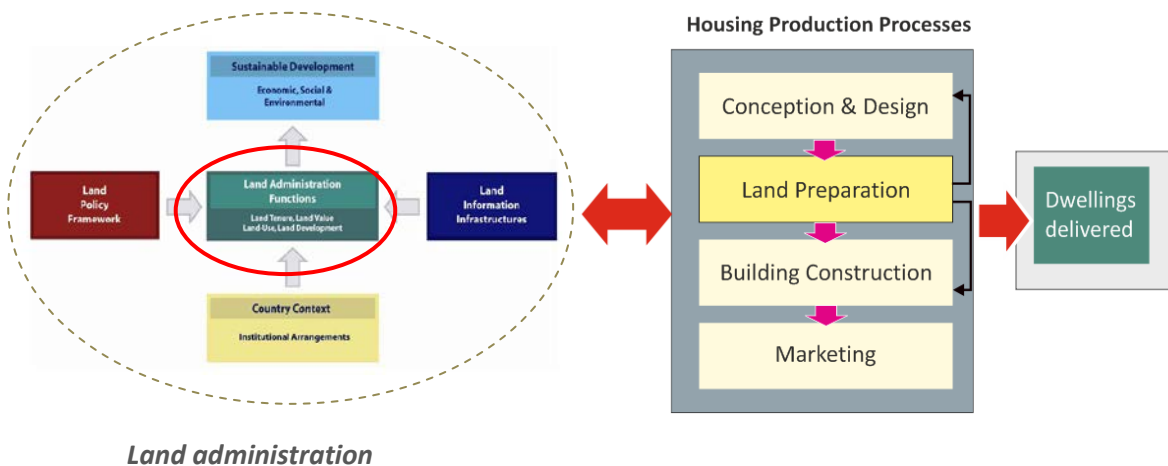


Figure 2.9 Land administration for housing production: The conceptual framework

The interactive link between land administration and housing production is presented in Figure 2.9. This is an amalgam of the housing production processes and the land management paradigm. It illustrates how housing production is underpinned by land administration as the core of land management paradigm and as the gateway to sustainable (housing) development. At the same time, the framework offers opportunity to explore how housing production processes provide context for understanding land management.

2.7 Chapter Summary

Housing production processes have various dimensions and thus requires multi-disciplinary approach. The review of theoretical issues (section 2.1) highlights different theories and frameworks developed by the different but interrelated fields of political economy, land administration and housing studies. These different viewpoints are utilised to conceptualise how the variables of housing production are related and identifies areas of convergence or overlaps between these disciplines.

Regarding modern theory of land administration, four principal functions: land tenure and land value (grouped as land market) land use and land development (grouped as land use development and management) were identified. The approach used in this research is to go beyond the traditional focus of each of these fields of study and to draw from their perspectives in an integrated way as to facilitate housing production. This is to explore the areas of convergence to investigate the role of land administration in housing production from a broader perspective.

Consequently, the areas of convergence between land administration and housing (*land development*); between land administration and political economy (*land market*); and between political economy and housing (which include the utilisation of *housing production factors*) provide contexts.

This conceptual framework offers a good platform to explore the connections between the variables of: land market, land development, and the inter-agency interaction. This allows rigorous assessment of governments' implementation strategies on land delivery and how these interactions impact housing production. This approach enables a better assessment of the activities of agencies involved in land administration. The research also keeps in mind the external influences such as population, urbanisation,

sustainability, technology and land characteristics in the way a society functions to facilitate housing production. The conceptual framework discussed in this section progresses Augustinus (2010:130) suggestion that: ‘... there is a need for a new concept of shelter policy, as there is a lack of commonly accepted conceptual frameworks for systematic shelter interventions that work at scale’.

The next chapter will examine the context for integrating land administration across functions and between different levels of government in greater depth. This will be accomplished by investigating the drivers for integration of functions and collaboration between agencies.

Chapter 3

The need for integrated assessment

“

....all the things and events we usually consider as irreconcilable, such as cause and effect, past and future, subject and object, are actually just like the crest and trough of a single wave, a single vibration. For a wave, although itself a single event, only expresses itself through the opposites of crest and trough, high point and low point. For that very reason, the reality is not found in the crest nor the trough alone, but in their unity...

”

- Ken Wilber

3.1 Introduction

One of the requirements for appropriate policies and right decision making, in the context of Spatial Data Infrastructures and Land Administration, is the reliance on collaborative interactions within and between jurisdictions (McDougall, 2006; Warnest, 2005). Several factors are important to necessitate a significant shift from the traditional *silo* based approach to an integrated management of land. These factors are drivers for collaboration among land agencies. They are considered to include, in addition to the technical considerations, issues of global, national, political, environmental and social interests.

Chapter 2 offered a conceptual framework by providing context for the understanding of the interactions between land administration and housing production. It set the scene and provided structure to allow the understanding of the integration of land administration functions.

Chapter 3 emphasises the imperatives of integrating land administration across functions and between different levels of government to facilitate land delivery in the context of housing. It starts with the understanding of land administration *silos*. This is followed with a description of each of the land administration functions as they presently operate on *silo* bases. It later discusses the drivers for land administration integration and reviews the importance of land administration integration in different national jurisdictions. The later part discusses present practices and the challenges of integrating land administration functions. The concluding sections summarise the major limitations of the current initiatives and prepares grounds for the development of an integration assessment framework to facilitate better understanding of integration between policies and processes. The ultimate goal is to develop a framework to improve integration and consequently improve land delivery for housing production.

3.2 Land administration silos: The Past as Prologue

For most parts of history and for many countries, the core land administration function was land tenure and land registration for taxation and fiscal policies. The major driver was revenue generation for the empires and kingdoms. In this regard, taxation of real estate has a long history almost as old as civilisation. In the earliest times, property taxes were levied and collected in Egypt, Babylonia, China, and other parts of the

ancient world to finance the empires (Dale and McLaughlin, 1999; Dowson and Sheppard, 1952; Hennsen, 1995; Larsson, 1991; Williamson et al., 2010). In the contemporary time, the property tax continues to play an important role in many nations (Dye and England, 2010).

The division of land administration along functions as seen today is attributable to those long periods of fiscal policies and the administration of land (England, 2007). While it could be argued that land use determines, to a larger extent, the land value (Angel et al., 2010b), deliberate attempt to organise land use at scale are a relatively recent development. Though, there were elements of land use control in ancient times (Dale and McLaughlin, 1999), modern land use and development planning came as a response to the twin problems of urbanisation and the outbreak of diseases (Glasson and Marshall, 2007).

As it stands presently, land tenure and value, land use and development, are divided into separate institutions (Enemark et al., 2005), hence the limited interactions. These have huge implications for the management of land for housing production (Newton et al., 2011). Several attempts were made in the past to understand this limited integration of land administration functions. Most past studies (Bennett et al., 2005; Kalantari, 2008; Mohammadi et al., 2006; Rajabifard et al., 2003) focused on the development of the ‘cadastral fabrics’ which arguably are necessary condition but are, however, generally not sufficient for the kind of rigorous analyses required for housing production.

Existing knowledge centres on different technical aspects of land administration *silos* and the inter-agency interactions especially in the areas of land information management. For example, Kalantari (2008) focused on SDI and the interoperability of spatial data. According to Kalantari ‘the silo based system of managing interests in land hinders proper communication, data exchange and interoperability of land administration systems’. Rajabifard (2007) focused on the spatial enablement. Bennett (2007) emphasised on a better management of property rights, restrictions and responsibilities. However, while these are significantly important, they do not sufficiently consider the direct implications of the phenomenon on housing production. In this regard, those past studies had not paid sufficient attention, beyond registration and cadastres, to the integration of land administration. Other important aspects: policy,

institutions, agencies, processes and sub-functions of the corresponding land administration functions needs to be further explored and investigated.

It is useful at this stage to discuss each of the land administration functions in a little more detail. The subsequent sections will focus on drawing links between the functions and establishing the needs for integration beyond the cadastral fabrics.

3.3 Land Administration Functions

Land administration functions as described by Williamson et al. (2010) include: land tenure (land rights, registration of title), land value (the collection of revenues on land by government through sales, leasing and taxation, grand rent, stamp duty and compensation in the events of compulsory acquisition), land use (regulations, zoning and control), and land development (implementing land use through the development of infrastructure).

3.3.1 Land Tenure and registration systems

- ***Land Tenure***

Land tenure is described as the way land is held or owned by individuals and groups. It is viewed as the direct relationship between the people and the land on the one hand, and between individuals and groups of people and their dealings in land on the other (United Nations, 2009). Land tenure systems according to UN-HABITAT (2008:5) are considered as the ‘sets of formal or informal rules and institutions which determines access to, and control over land and natural resources’. The rules of tenure reflect the power structure of society and describe how access is granted through the rights to use, control and transfer of land, as well as associated responsibilities and restraints (Augustinus, 2009). As presented by UN-HABITAT (2010): ‘Tenure security and the rights attached to land need to be considered when looking at land supply systems’.

There is a continuum of different tenural practices in different countries of the world generally informed by the interplay of the *structure* and *agency* as it affects the people-to-land relationship. The continuum concept also underpins the development of integration assessment and the improvement strategies between land administration functions (see Chapters 5 and 6). Table 3.1 presents a summary of different tenural characteristics.

Table 3.1 Tenure Systems and their Characteristics

Tenure System	Characteristics	Advantages	Limitations
Freehold	Ownership in perpetuity	High degree of security.	Costs of access generally high.
Delayed Freehold	Conditional ownership.	Same high degree of security as freehold when payments are made on schedule or developments are completed.	Default in payments or developments may result in eviction and loss of funds invested.
Registered Leasehold	Ownership for a specified period from a few months to 999 years.	As secure as freehold, but only for the period specified in the lease.	Requires legal framework. Costs of access generally high.
Public rental	Rental occupation of state-owned land or house	Provides a high degree of security, providing terms and conditions of occupation are met.	Limited supply may restrict access. Often badly located for access to livelihoods. Terms often restrictive. Deterioration may result if maintenance costs not met.
Private rental	Rental of privately owned land or property.	Good security if protected by legally enforceable contract.	Open to abuse by disreputable owners.
Shared equity	Combination of delayed freehold and rental	Combines the security and potential increase in asset value of delayed freehold and the flexibility of rental.	Requires a proper legal framework and efficient management
Co-operative tenure	Ownership is vested in the cooperative or group of which residents are co-owners	Good security. Maintains social cohesion.	Requires a proper legal framework.
Customary ownership	Ownership is vested in the tribe, group, community or family.	Widely accepted. Simple to administer. Maintains social cohesion.	May lose its legal status in urban areas. Vulnerable to abuse under pressure of urban and market development
Religious tenure systems (e.g. Islamic)	Islamic tenure has four main categories.	Facilitates family/group tenures and accessible and affordable land management procedures	Because they are outside the commercial land market lands are often inefficiently managed. Inheritance may cause conflict
Intermediate, or temporary, tenure systems	There are many pragmatic Arrangements: land certification, 'Certificates of Comfort', Temporary Occupation Licenses, etc.	Reasonable security for households to invest, whilst protecting long term public interest options for change.	Costs may be incurred by authorities or residents if relocation is required. If these prove excessive, redevelopment can be inhibited.
Non-formal tenure systems	These include many categories with varying degrees of legality or illegality. They include regularised and un-regularised squatting, unauthorised	Some of these non- formal categories, such as squatting, started as a response to the inability of public allocation.	As demand has intensified, even these informal tenure categories have become commercialised, so that access by lower income groups is increasingly constrained.

Source: UN-HABITAT (2008:9)

Rights in land are defined and regulated within these prevailing tenure systems. Land rights could involve combinations of different elements. This has been found to, significantly, affect individual strategies for housing production. As identified by UN-HABITAT (2008:6), these might include among others, the right: to occupy, enjoy and use; restrict or exclude others; transfer, sell, purchase, grant or loan; inherit or bequeath; develop or improve; rent and sublet. These tenure practices, most times, dictate the housing production tracks. Most importantly, where the ultimate ownership rights are vested in the government, there are usually some restrictions, that might preclude the users to transfer the rights to another person. While these restrictions might not necessarily obstruct the tenure security of the land holder (UN-HABITAT, 2008), it has the potential to undermine it.

It is worthy to note that previous assessments of tenural practices are based on two broad classifications of formal and informal land tenure. Recent developments emphasise that the distinctions are blurred between the different practices, hence the new concept of land tenure continuum as illustrated in Figure 3.1.

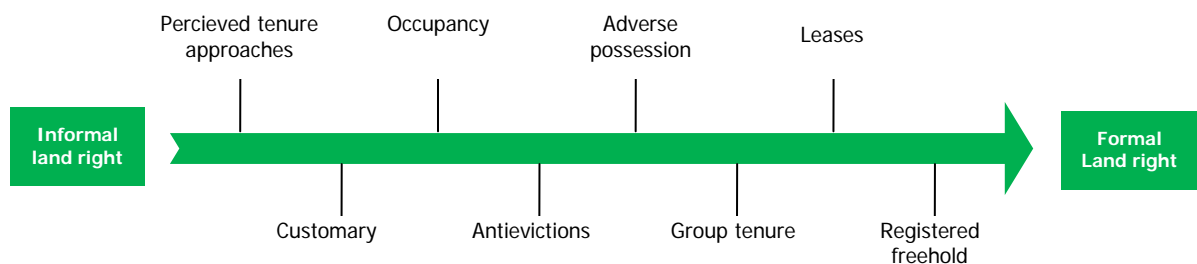


Figure 3.1 The continuum of land rights follows a path from informal to formal

UN, HABITAT (2008)

The prevailing legislative framework in each national jurisdiction determines, in varying degrees, the legality of these different tenural practices. It also determines the tracks and strategies of individuals and groups in housing production as later discussed in Chapters 6 and 7. The developed countries sit at the high end of the continuum with majorities of the citizen holding freehold titles. However, in developing countries, lands right derived from the custom is dominant (UN-HABITAT, 2008). They are considered secured in some instances, especially where there are less interference of urbanisation, ribbon development and the predominance of cash crops (Augustinus, 2003).

Torhonen (2004), however, argues that if land administration only recognises the codified statutory tenure then, following the logic of De Soto (2000) arguments, the informal sector will suffer and ultimately lead to failed land administration. Ironically, both statutory and customary tenure rules are followed half-heartedly. From the views of Torhonen and Goodwin (1998), the abridged statutory and customary tenures explain while significant tenure practices in developing countries are undefined, ambiguous, multi-dimensional and *multi-layered*.

The major issue at stake in most developing countries with respect to tenure is the security through land registration.

- **Land Registration**

Land registration provides the framework and means for recognising formalised land ownership rights and for regulating the transfer of land rights. The processes of land registration have become an integral part of land tenure as ownership issues became more apparent (Steudler, 2004). There are essentially many different types of land registration. As noted by Dale and McLaughlin (1999), the principal ones are: *private conveyancing*, *registration of deeds* and *registration of title*. These are in addition to the basic oral agreement system.

Most often, documents on interests in land as well as information about the nature, the geographic description and the personal information about individuals to whom the interests relates, is kept in the land register. The prospects as well as the constraints of achieving this ‘reflect the history, culture, level of development, legal tradition and politics’ and the prevailing land tenure arrangement (Torhonen, 2004; UN-HABITAT, 2012; Zevenbergen et al., 2012). Torhonen (2004) posits that land tenure provides the major challenge to land registration especially in the developing countries where there are no definite frameworks. Zevenbergen et al. (2012) offer strategies to cater for pro-poor registration/recording in Uganda. This is found to be relevant and consistent with the situations in most African countries.

However, irrespective of the level of development, land tenure and the registration systems are considered to impact the land delivery processes for different purposes, especially the process of obtaining development right. The efficiency and effectiveness of managing these, as it would appear, have significant implications for land value.

3.3.2 Land Value and Valuation

Land value as described by the UN (2005:20) is the actual or assessed capital market worth, which is the amount of money for which the land has been or can be exchanged or sold; or it may refer to the rental value, which is the amount for which the land can be hired out. The act of determining the value of land by the authorities is generally referred to as land valuation. This is one of the functions of land administrators. There are several reasons to necessitate the determination of land value. Among these are:

- *Taxation and fiscal policies*

Taxation of real estate underpinnings revenue generation as noted earlier, both in ancient and contemporary societies. The property tax continues to play an important role in many nations. In 2006 fiscal year alone, local governments in the United States raised nearly 72 percent of their tax receipts via property taxation, 56 percent in New Zealand and almost 100 percent in Australia (Dye and England, 2010).

Apart from being a major source of revenue for government, one of the advantages of land value taxation is that it discourages speculators from holding land out of production by speculation. As observed by George (1962) cited in Dye and England (2010):

‘[T]axes on the value of land not only do not check production as do most other taxes, but they tend to increase production by destroying speculative rent. ... If land were taxed to anything near its rental value, no one could afford to hold land that he was not using, and, consequently, land not in use would be thrown open to those who would use it’.

Land taxation is of particular relevance because of its capacity to affect land release and the overall cost for housing production. Respective governments in different jurisdictions have developed different tax regimes to deal with the issues of taxation. These are also administered by different levels of government. From the perspective of this research, it is imperative to understand the impact of different tax regimes on land release strategies of government. This feeds into the issues of affordability and accessibility of land by respective developers or builders. Another important consideration is the infrastructure development and the associated charges.

- *Infrastructure development and the negotiation of charges*

The development of infrastructure to facilitate housing development, especially in the Greenfield areas involves a lot of capital outlay. Most often government, being the major provider of these infrastructures, usually devises means of recouping its investment. This is apart from the potential to significantly increase the value of land. The improved value comes with a premium. In responding to this, government could come in the form of infrastructure levies: Growth Area Infrastructure Charges (GAIC) – Victoria, Australia; Two-rate property tax – Pittsburgh, USA. Government could also come in the form of placing development conditions on land to recover the cost. For example, the increased land value arising from changes to regulation or zoning could attract a fee (betterment fee). This in turn could affect location decisions of developers or home owners (National Housing Supply Council, 2010).

Conversely, there are the issues of compensation to deal with the issues of reimbursement for damaged or because of dispossessing of others' access to their land. Circumstances may arise that could lead to compulsory acquisition of land by government for development purposes especially for the overriding public interest. In such circumstances, compensation is deemed paid to people who have been affected by government actions. In any of these, appropriate compensation has to be ascertained hence the determination of value.

Determining and paying appropriate betterment or compensation is particularly a major issue among jurisdictions. It affects the level of tenure security and impact housing production (Oyesiku, 1998). The problem, however, is that in many cases, adequate information is difficult to obtain due to the complexities of land release processes. The processes usually involve many different agencies including state agents, banks, lawyers, and surveyors (Le Grand and Robinson, 1984).

From the foregoing, the needs for determining land value and the procedures to pursue this are mediated by the agencies responsible for performing their functions. One of the major factors affecting the value of land is the potential use or the actual use to which the land is put.

3.3.3 Land use and Spatial Planning

Land has varying potentials for different competing uses or purposes. Land use is generally concerned with the rights to use the land and the manner in which it is used to generate income or meet social needs. In this regard, the rights determine what might legally be done with the land. Government involvement in controlling land use most often is well-intended, designed to achieve ends that are thought to be socially desirable (Brueckner, 2007). 'Government regulations and land use planning are the most common mechanisms of land supply for housing' (UN-HABITAT, 2010). However, for some of the time, it has been found to significantly contribute to high cost of land delivery for developmental projects such as housing (Whitehead et al., 2005; Williams, 2005). Improved planning and land-use procedures can increase the supply and reduce the cost of land for housing and plummet urban squatting (Toulmin, 2009).

The amount and percentage of land use for different purposes are changing, while the extent and nature of such changes are becoming increasingly important to policy makers. In England for example, there are four areas of policy concern or interest with regards to the use of land. These are: the density of new developments, the proportion of new housing that is on previously developed land, the transfer of agricultural land to housing or other development, and finally the development of vacant land in urban areas (LUCS - Land Use Change Statistics, 2004). All of these areas are of major interest to this research, especially as they affect land delivery for new residential development and the redevelopment of established areas.

The use of the land is also significantly important because it often determines the wealth it generates and hence its exchange value (Mohammadi et al., 2005). The efficiency and effectiveness in the determination of use and development rights by responsible planning authorities involved multiplicity of activities. This multiple nature of activities and the incompetence of the responsible authorities mean delays, frustration and high cost of compliance (Glaeser et al., 2005). There is thus a well-recognised scope for reducing compliance cost. These include reforms to planning administration that seek to streamline processes for gaining development approval (Goodman et al., 2010a; Gurran et al., 2008b). These could be accomplished through better coordination of information relating to: public notification, referrals to multiple agencies and the review of appeal mechanisms (National Housing Supply Council, 2010).

As presented in previous studies on Australian cities, planning activities have been implicated in determining housing outcomes (COAG, 2011; DSE, 2003; Goodman et al., 2010a; Gurran et al., 2009; Gurran et al., 2008a; Kelly et al., 2011; National Housing Supply Council, 2010; Productivity Commission, 2011; URBIS, 2010). This is also found to be the case in most other national jurisdictions. Overall, land use planning is not well articulated as a result of its multiple natures.

It is important to make a clear distinction between land use and land development because the two are sometimes interchangeably used. For example, as contained in the UN ECE guidelines, there was no clear distinction between land use and land development (UN ECE, 2005). However, land use and land development are thought to impact differently on housing production.

3.3.4 Land Development

Land development includes the construction, alteration or demolition of a building or works, while land use relates to the right to use the land and the manner to which it is used. It also includes the consolidation and subdivision of land (DPCD, 2008). This distinction is important with regards to development right enforcement, if the development control activities of government must align with the development permit or consent.

In some cases, the development of land and the proposed use both require permit. This means that approval is required to construct a building and the use of a building for the purpose for which it is constructed (DPCD, 2008). To achieve this, there is a need for integration of land administration functions and secured collaborations from different government departments and agencies to make this work (Newton, 2010). As it stands presently, most jurisdictions struggle to bring these agencies together to achieve this.

The common theme as seen in the literature is the continual conflicts of interest on rights, restrictions, and responsibilities. These perhaps explain why each agency wants to focus only on its own activities. Given the scope and requirements of land use planning and development, it provides sufficient bases to explain and establish the needs for integration between the other land administration functions. The subsequent sections view land administration integration from this perspective.

3.4 Drivers for integrating land administration functions

Drivers are what motivate integration of land administration functions. To a curious mind, the questions that readily come to mind are: What is integration? Why do we need integration across functions and between different levels of government? Integration is used to denote combining or adding different components of land management to achieve sustainable development. These involve, adopting the land management paradigm and using housing production as a context.

A range of existing literature suggests that the needs for integration of process and collaboration between agencies are motivated by the requirements to resolve wide-ranging issues peculiar to and outside of individual organisation's circumstances. That is, issues that ordinarily will be difficult or more challenging to resolve if attempted by one organisation. This thus suggests that agencies need to work together. However, within this context, different terms are used to describe the processes of working together.

Different terms such as: integration, whole of government, joined-up government, cooperation, coordination, partnership and networks are used by public servants and academics to describe organisations' *working together*. O'Flynn (2009:114) observed that there is a 'trend toward calling *all* forms of working together *collaboration*'. These terms are described in a whole range of literature (Brown and Keast, 2003; Davis, 1995; Geddes, 2000; Pollitt, 2003).

However, it is important to distinguish the meaning of *cooperation* and *coordination* from *collaboration*. Mulford and Rogers (1982) using: rules, goals, linkages, resources and threats to autonomy, observed that *cooperation* is generally seen as less formal, involving less resources and less threatening as the organisational goals are not compromised. Conversely, *coordination* requires more formal rules, joint goals, commitment to resources and as a result, it is considered to pose a threat to autonomy. Collaboration between organisations is seen as an extension and/or the inclusion of both cooperation and coordination. As described by Gray (1989:5) collaboration is:

‘the process through which parties who see different aspects of a problem can constructively explore their differences and search for solutions beyond their own limited vision of what is possible’.

In this regard, collaboration is considered a powerful strategy or tool for delivering efficient and effective land governance for housing production.

The needs for cross-sector collaboration might be motivated for many reasons. However, it is essentially based on the reality that ‘we live in a shared-power world in which many groups and organizations are involved in, affected by, or have some partial responsibility to act on public challenges’ (Crosby and Bryson, 2005).

The preceding paragraphs provided a broad perspective of collaboration as it aids integration of processes. Given the complexity and associated challenges of land delivery, it is important to gain clear insights to the drivers for integration of land administration processes across and between different levels of government. With this in mind, several factors identified by different authors are now discussed. Attention is focussed on those perspectives that analyses the issues of integration from the view point of land delivery for housing production particularly land use and land development.

Several factors are identified as drivers to manage land information. The perspective offered by Wallace et al. (2010) for Australian context is inclusive, but however, expanded to include other issues relevant to land management policies and land administration processes. These are:

- simplification of the land development process for national businesses
- aiding spatial planning and infrastructure decisions for all tiers of government
- considerations for ‘Social Inclusion’
- enablement of National land administration information
- developing parameters for ‘building information’
- Whole of Government (WoG) Approach in monitoring city growth
- population as a Global and National Driver of Housing demand and supply
- Integration of land administration functions in the context of housing affordability.

3.4.1 Simplification of the land development process for national businesses

It is required, at least for economic development and ease of doing business, that land development processes should be more efficient and effective. Regarding this, planning governance should seek consistency, clear separation of responsibilities while reducing

duplication, in making decisions about permissible development among the tiers of government (National Housing Supply Council, 2010). This by extension includes the determination of use and development rights which impact on land delivery. This is expected to be structured in a way that will facilitate seamless businesses transactions across jurisdiction. Achieving this has been a major challenge.

In both developed and developing nations, it has been observed (DAF, 2005, 2009; Egbu et al., 2008; SIBA, 2010; Steudler, 2004) that:

- Land-use planning and administration functions are often institutionally disjointed across a number of ministries.
- These functions have traditionally been isolated from other parameters such as economic and social considerations.
- Control over development is enforced primarily by extensive bureaucratic approval procedures across land administration agencies.
- In many countries, such as Ghana, Nigeria (Egbu et al., 2008), Pakistan and Peru Steudler et al. (2004), the approval process can take anywhere from two to seven years.

From a land administration perspective, there is therefore a need for infrastructure to support the determination of the use rights and legal restrictions on land (Brits et al., 2002). It should also support the current strategic land use planning and provide data on the changing patterns of land use, thus supporting the statutory planning and monitoring process.

It becomes necessary to streamline these processes to stimulate housing production, by facilitating the associated activities of developers, builders, government, businesses and financing (Newton et al., 2011). Overall Wallace et al. (2010), notes that a national approach is important to assist government and the private sectors in terms of savings and strategic understandings of how land owners, developers, financial institutions, planning authorities, building contractors, might be impacted by proposed developments.

3.4.2 Aiding spatial planning and infrastructure decisions for all tiers of government

Planning and implementation of infrastructure are essential for national and regional development. Advocates of globalisation view the global economy as operating outside the influence of local political actors. The deployment of infrastructure to boost local and regional development is a necessary requirement that should be coordinated at the national level. This is found to be challenging with serious implications for the power of local policy makers and planning regimes. From this perspective, it is required that there is an increasing need for more coordination at the national level.

In the United Kingdom, regional planning principles have been adopted for several decades to manage the spatial pattern of growth (Barlow et al., 2002). This is significantly important to pursue the sustainability objectives at the national level. Major infrastructures are important drivers to achieving this. The decision regarding the scope, location and cost of such infrastructures are supposed to be optimally taken at the national level of governance. The requirements to achieving this are usually challenged by the national economic and political structures. The challenges are more pronounced if it is a federated system of government where respective state governments have constitutional responsibilities to manage this.

As an example, with the dominance of the states' and territories' capital cities in Australia, and the burden of providing for much needed infrastructure of regional and national importance; it becomes imperative for federal government to play a significant role. The decision to pursue this led to the Council of Australian Government's (COAG) call for all Australia's capital cities to design and implement strategic development plans by 2012 (COAG, 2009). The validation of the plans will require the federal government to have access to authoritative, accurate and assured information on tenure, value, land-use, and development. These will be used to ensure Commonwealth spending on city infrastructure is commensurate and appropriate.

By focusing on the broad institutional and structural analysis of planning systems in Germany relative to the USA, Schmidt and Buehler (2007:56) observed that:

‘the existence of an integrated yet flexible planning framework is a fundamental difference in the manner in which German planning is organised, acknowledged, undertaken and accepted’.

The German model clearly supports more coordination of planning processes and cooperation between all levels of government (Kunzmann, 2001).

In the United States and recently in Australia *Place-based* policies have gained in popularity by leveraging on investments that focus on resources in targeted places and drawing on the interrelated effect of well-coordinated action (Office of the Press Secretary, 2009). As an example in Australia, the 2011/12 budget emphasises the utility of spatially enabled governance, when it was required that government spending in regional areas be justified. This is to encourage better participation of all stakeholders and thereby promote social inclusion.

3.4.3 Considerations for ‘social inclusion’

Within the context of housing production, policy to enhance social inclusion requires inter-agency approach. This is because it involves a range of service delivery (Gwyther, 2008). The German planning framework as discussed earlier, for example, is structured to allow the federal government to outline broad goals such as social equity or sustainable development which *must* be addressed by the various planning levels. This vision is backed up by the constitution in a way to develop and spatially organise the country to guarantee equal conditions irrespective of location (Hall, 1992). Qualitative and quantitative housing production is thus expected to align with the spatial pattern of development.

In Australia, the government’s premise for framing policies within the scope of social inclusion is the realisation that, despite several years of economic growth, many households are still excluded from mainstream opportunities, especially good job opportunities that could stimulate affordable housing (Hulse et al., 2010).

3.4.4 Enablement of National land administration information

National land information is a *sine qua non* for national development (Williamson et al, 2010). A national approach to land information also holds the potential to, holistically, manage property rights, restrictions, and responsibilities over land at the national level (Wallace et al, 2010). The advancement of this viewpoint has lead to an increased promotion of spatially enabled government for efficient and effective decision making (Georgiadou et al., 2006). Evidence of the need for large-scale land information to

support measurement of sustainable land production and changing land-use patterns continues to emerge.

Specifically in the area of housing production, nations' capacity to understand housing needs and demand require improved demographic information linked with geographic land information. To estimate appropriately, housing demand, robust combinations of array of data across land administration functions and between different levels of government is required. This is evident, in Australia, the overall interests of federal government in land in Australia, is not fully captured. There is currently no aggregated information set, and where available they are disparately stored across a range of state registries. This dis-aggregation makes decision making and asset management relating to federal land and property extremely difficult. It is thus argued that a national tenure database would overcome this difficulty (Wallace et al., 2010).

3.4.5 Developing parameters for '*building information*'

Building information is increasingly becoming important in the wake of new world order. Parameters are now set for assessing the efficient use of buildings, while considerations are also being given to a more efficient utilisation of space. Such information like, building use, value, height, location and energy usage are increasingly important in assessing the economic performance of cities. Different agencies are responsible for the different aspects. They need to collaborate for effective performance.

i). Modelling economic development

In assessing the performance of the economy and by extension, assessing housing affordability, building information is imperative. It could also be argued that housing demand is not just a function of demographics but is also influenced by changes in incomes, prices, lifestyles and preferences (Barlow et al., 2002). In other words, housing pressures are created by changes in household formation UDIA (2009). This and other influences are important themes for this research.

ii). Residential Development Potential Index (PRPI)

This refers to the measurement of redevelopment sites and spaces with the potential to accommodate additional housing especially in the greyfield areas. The property redevelopment potential metric for each parcel is calculated: 'as the ratio of the

land value (numerator) to capital improved value (land value plus value of the built assets on that site – the denominator)’(Newton et al., 2011:43).

This type of analysis could only be performed if data is available at parcel level. Inputs from different agencies dealing with tenure, value, use and development are required to make this work. The data set derivable from this has the potential to be spatially enabled and migrated to 3D environment for visualisation and better decisions.

3.4.6 Whole of Government (WoG) approach to monitoring urban development

Whole of Government Approach is considered a new way of thinking in resolving issues that cut across government and jurisdictions. This is important in developing mechanisms, structure and cultures that will facilitate all parties working together (Keast et al., 2004; Mulgan, 2002; Pollitt, 2003; Productivity Commission, 2010). It is construed and described in several ways: *Whole of Government Approach, joined-up approach, collaboration, working together* (Keast et al., 2004; O’Flynn, 2009). Given the range of issues involved in housing production, it is important to adopt an approach that will bring, at least a majority, if not all participants to the same table in seeking solutions to and dealing with associated challenges. Some of the contentious issues that require a more collaborative approach in solving housing production problems are now discussed.

i). Compact City versus Urban Sprawl

The contentious issues around the debate of compact city and urban sprawl need collaborative approach to close-in on a more acceptable position (Gurran et al., 2008b). Achieving this involves planning at a national scale, and the consideration of population, environmental protection, economic development and social responsiveness. For example, the Land Use Change Statistics (LUCS - Land Use Change Statistics) of England provides particular value in monitoring the supply of land for new house building and monitoring the policy goals of planning policy. Essentially, it is a veritable tool for density decay and related analyses like residential development potential assessment.

In other national jurisdictions outside England, the desire to achieve environmental sustainability led to international call for compact cities and smart growth

development initiatives. This and other factors have necessitated the restructuring of most major cities.

As noted in Australia, one of the major barriers to realising efficient management of cities to achieve targets for smart growth is the planning approval and development assessment processes (DAF, 2009; National Housing Supply Council, 2010). To effectively handle this will involve different agencies coming together to develop appropriate policies that will support more effective decisions.

ii). Land Release Policies

Through the conventional wisdom it could be put forward that the expansion of urban space to the agricultural areas is detrimental because the urban perimeter extension evidently cuts further into available productive land and encroaches upon important ecosystems. However, given the level of urbanisation in most urban centres around the world, it is evident that those urban extensions might be necessary to accommodate the growing population and promote economic growth.

To prove this at a global level, Angel et al.(2010a) and Angel et al. (2011) embarked on an extensive analysis on the contentious issues of urban containment. Their findings reveal there is a need for a paradigm shift from urban containment to ‘the making room paradigm’ especially in the fast growing cities. As presented, urban policies should be intended to accommodate the agglomeration of addition population in a way that is consistent with the sustainability, liveability and productivity objectives appropriate in each jurisdictional context.

It is reasonable then to ask: to what degree should the making room paradigm be pursued? On what basis should this be structured? What should inform the decisions on which such policies should be based? What is the role for spatial data infrastructure in achieving these?

It is essential that consideration should be given to differences among cities globally in terms of physical characteristics of land and demographic characteristics of population. In addition, it is equally important that the magnitude of the phenomenon is situated within the circumstances in each jurisdiction.

3.4.7 Population as a global and national driver of housing demand and supply

Population is considered as the most singular demand factor in housing production (Nations, 2008). Its major elements: *number* in terms of the absolute figures; *nature* in terms of demographic characteristics; and the *distribution* pattern in terms of the density; are important considerations in housing analysis. This must be synchronised with land data to support appropriate decisions. In Australia, The Productivity Commission (2010:2) notes that ‘the complex numbers of policy challenges are prospects for ensuring rigorous assessment of policy and evaluation of existing programmes’. This is important to establish the causal relationship between population and housing demand. To achieve this will involve a collaborative effort of the agencies and other stakeholders through the sharing of data and comparative analysis of policies.

The continuous increase in population is a major challenge to sustainability. As observed by Cohen (2006) the world is experiencing both an increase in the absolute number of large cities, at the same time, the sizes of these cities are unprecedented. The greatest proportion of this growth is taking place in developing countries (United Nations, 2007). The greatest concern is how the additional population would be accommodated. Most scholars have argued that the fundamental disincentive to housing is securing developable land to meet the projected growth in population and households. This assertion raises two major issues. One is whether the numbers projected are accurate and how are these numbers distributed across the national jurisdiction. The second is the political dimension with regard to whether government, at whatever level, is prepared to recognise there are housing needs and are willing to enable production of housing (Barlow et al., 2002). Thirdly, if a government is willing to enable housing production, how does it pursue this in a sustainable manner? This also leads to major policy issue affecting affordability.

3.4.8 Integration of land administration functions in the context of housing affordability

For much of the existing literature, housing affordability is often expressed in terms of affordable housing. This is somewhat a misconception as noted by Stone et al. (2011).

In their opinion, housing affordability should be seen as a relationship between housing and the people since affordability is not an inherent characteristic of housing units. Stone et al (2011) set housing affordability against the residual income approach⁵ in a way to provide sufficient meaning to the issues of semantic, substantive and definitional issues. The different perspective is well documented in Stone et al. (2011).

What is important here is the relationship between housing demand and housing affordability. This is because it impinges on land management policies and land administration processes.

There are opposing views as to the causes of housing affordability crisis. The questions often asked are: Were rising prices the result of a demand-induced bubble or a consequence of government supply-side policies? Are restricted housing supplies a function of excessive control of land supply, taxes/charges and onerous regulatory requirements? To provide any convincing answers, considerations of housing markets is required. These are large and interactive (Productivity Commission, 2010). There are usually many players of both sides of the market, hence the imperative for interactions and collaborations.

One of the targets is to facilitate the development of policies that will encourage efficient and effective delivery of land. This is expected to take into consideration interactions among stakeholders in such a way that will guarantee housing affordability and sustainable development.

In summary, this section highlighted the significance of integration. Lack of integration of land administration functions is observed to come at a cost. Some of the identified costs in Australia context are presented in Table 3.2 as observed by the Planning Institute of Australia (Planning Institute of Australia, 2010).

⁵ *This is what different household types can afford to spend on housing after taking into account of other necessary expenditure of living. This seems to follow the classification of Marlow's hierarchies of needs*

Table 3.2 Costs and benefits of good versus poor integration of land administration processes

Stakeholders	Costs of poor integration	Benefits of good integration
Property developers	Holding charges, access to finance, delayed release of product, inconsistent advice for decision making, excessive compliance/study costs	Higher confidence, quicker approvals, greater certainty
Businesses	Loss of trade due to delays, higher compliance costs	Less red tape, opportunity to streamline business practices and business expansion, innovation and research through cost savings
Government	Greater frustration, poor image	Easier work environments, better environmental or development outcomes
Residents	Lack of confidence in system, disillusionment with processes, developers and governments, political reaction	Confidence in outcomes, greater support for and trust in government

Source: *Adapted from* Planning Institute of Australia 2010. Submission to Productivity Commission Inquiry

In all, it is imperative that, Land administration systems must seek to deliver broader societal objectives by managing land in a more integrated fashion. As outlined in Table 3.2, this is to reduce cost of doing business by developers and builders; promote efficiency in land governance by the agencies and restore confidence in the residents regarding government policies. In the context of this research, these are important issues for resolving problems of affordable housing production. There are ongoing initiatives in managing integrated land administration functions as discussed next.

3.5 Initiatives for integrating land administration functions

There are several initiatives directed at facilitating the integration of land administration functions. Among these initiatives are: Spatial Data Infrastructures, Spatially Enabled Government (SEG), Spatially Enabled Society (SES), Whole of Government (WoG), and good land governance. Some of the tools for implementing these initiatives are *e-government*, *i-land*, *e-Plan*, *e-Planning*, and Planning Portals. The main focus of these initiatives, starting with the Spatial Data Infrastructure, is now discussed with a view to identifying prospects and challenges.

3.5.1 Spatial Data Infrastructure

There is no universal understanding of the concept 'Spatial Data Infrastructure'. There are several perspectives to SDI. As exemplified by Grus et al. (2007), SDI is structured and highlighted along the following four major characteristics: the multiple ways in which it is defined; its conceptual objectives; its complexity; and its dynamism. These are considered to; significantly, influence its nature, assessment and application.

Chan (2001) conducted a study around issues of definitions and identified eleven significant SDI definitions by different organisations and authors in different parts of the world. He concludes that each of these definitions describes SDI from slightly different perspectives and that none of them describes SDI completely. The diversity of ways in which SDI is defined reflects its versatility (De Man, 2006). Among the major concerns is the treatment of SDI differently either as a process or as a product (Rajabifard et al., 2002). This highlights major issues around conceptual understanding.

In terms of the conceptual objectives, the major focus through past efforts has been on enhancing access to, and the sharing of, spatial data produced by various agencies (Grus et al., 2007). In this regard, Mooney and Grant (1997), Groot and McLaughlin (2000) note that SDI is a key component of any land administration infrastructure. Aligning with this perspective are the views that SDI helps to: 'avoid fragmentation, gaps in availability of Geographic Information (GI), duplication of data collection and problems of identifying, accessing or using the available data' (Spatial Application Division, 2003). In this regard, it is an enabling platform to facilitate data sharing.

To achieve this involves developing an infrastructure that integrates a multilevel hierarchy of interconnected SDIs based on partnerships at all levels of government (Rajabifard et al., 2000). Other views are that SDI is meant to support information discovery, access, and use of geographical information (Nebert, 2004).

The conceptual understanding, however, predisposes scholars to focus on different aspects of SDI. Most often, the interest is on the facilitation of the data exchange role of SDI; while others may see SDI only as a facility for spatial data production and storage. In this context, the fundamental aim of SDI is to link people with spatial services and data. Yet, many others see SDI only from the perspective of just one aspect of land administration functions, especially the tenure and cadastre issues.

Williamson et al. (2010) emphasises the importance of SDI as a key to spatial enablement and the usability of spatial information for information generated by land administration processes. From this perspective, SDI links data producers, providers and value adders to data users. In this regard, SDIs are a key component of any land administration infrastructure (Groot and McLaughlin, 2000; Mooney and Grant, 1997).

Existing literature, however, revealed that only a few have actually focused on the application of SDI in making adequate and informed decisions to achieve sustainability objectives that go beyond data sharing (Vandenbroucke et al., 2009). This research seeks to explore further in this direction by focusing on the SDI components and strategies that facilitate making informed decisions. These include issues around policies, data creation, analysis, sharing and usage. The few attempts made in the past and the strategies for dealing with these, most often, revealed the complex nature of SDI.

- ***Generational Development of SDIs***

SDI evolves gradually over time. These different stages do have different implications for inter-agency collaboration and integrations of processes. The empirical analyses in Chapter 7 explore this further.

Rajabifard (2006a) discusses the two generations of SDI development along product and process-based SDI development models:

- *The first generation:*
 - Data was the key driver for SDI development and the focus of initiative development.
 - The value of SDIs was measured in terms of their productive output, the savings for producers/providers of spatial data, and from sharing.

However:

- *The second generation:*
 - The use of that data (and data applications) and the need of users are the driving force for SDI development.
 - It has a more holistic understanding of the financial and socio-cultural benefits of SDI development, as well as support for spatial decision-making.

The two generational development models are illustrated in Figure 3.2.

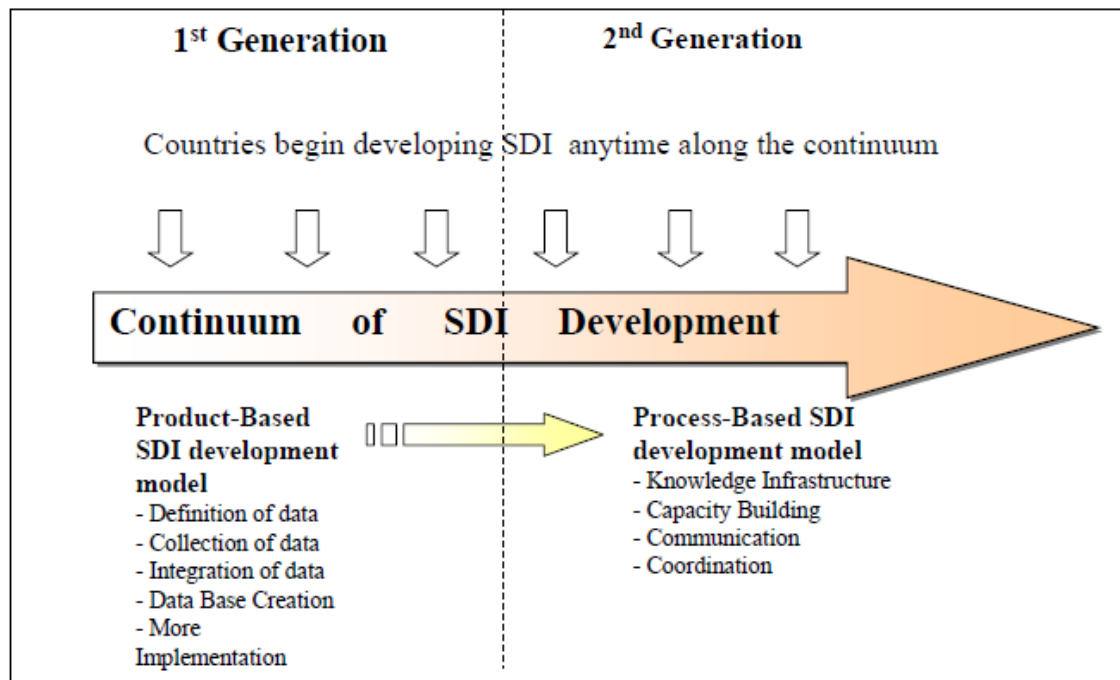


Figure 3.2 – Relationship between the 1st and 2nd Generation of SDI Process-Models

Source: Rajabifard (2006b)

The research interest here is situated within and closely aligned with the second generation and seeks to explore the parameters of the process-based SDIs development model. It focuses particularly on collaboration among agencies and functions. The interest is to explore the needs for spatial data to inform policies and decisions, taking into consideration different approaches and perspective already developed.

• ***SDI Assessment***

It is important to assess SDI to determine its challenges and thus develop strategies for improvement. Existing knowledge reveals significant efforts by many researchers to achieve this. These include the work of: Cromptvoets (2006), Delgado-Fernandez et al. (2005), Rodriguez-Pabon (2005), Steudler et al. (2004), Kok and van Loenen (2004), Masser (1999), Onsrud (1998). These previous research undertakings are of significant importance but the interest in the present research is focused on the utilisation of SDIs to facilitate the processes of decision making. The assessment component is focused on the importance and use of spatial information to spatially enable the society. This is regarding planning and development assessment within the strategic planning principles. This is important to seek better ways of making developable land available to accommodate the growing population in most urban centres around the world. In

summary, it is acknowledged that SDI forms the bedrock of evidence-informed policy (as further discussed in Chapters 7 and 8). In the meantime, the significance of different initiatives to spatially enabling government and society is now discussed. This starts with e-government and connected governance.

3.5.2 e-Government and Connected Governance

The term *e-government* refers to the use by governments of information technologies (such as wide area networks, the Internet and mobile computing) that can change the way in which government agencies conduct business and relate to their citizens and other agencies (UN, 2008). e-Government aims to provide services that are government-to-citizens or government-to-business and inter-agency communications, in ways that are friendly, convenient, transparent and inexpensive. The key is not only in the technology, but also more importantly in having data available in the right form. With regards to land delivery for housing, this has evolved in the form of online portals, especially planning schemes to indicate zoning and overlay. This is also useful regarding the location and allocation of public housing for those who could not meet their housing needs through the private rental market.

Existing knowledge reveals the major benefits derivable from e-government initiatives. These include:

- the potential to contribute significantly to the process of transformation of the government towards more cost-effective government
- the ability to facilitate communication and improve the coordination of authorities at different tiers of government, within organisations and even at the departmental level.
- the ability to enhance the speed and efficiency of operations by streamlining processes, lowering costs, improving research capabilities and improving documentation and record-keeping (UN, 2008)
- the ability to test and update policies and decisions.

Currently, attention is shifting from *e-government* to *connected governance* by taking advantage of the advances in technology. This offers new thinking about increasing integration in service delivery based on commonality of infrastructures, data and business processes (OECD, 2007). Within this framework, intergovernmental processes

could be integrated vertically between various government agencies and/or horizontally between agencies at the same level and/or with the inclusion of private sector and other stakeholders. This proposition is consistent with the market place model of SDIs.

The major attribute of this new paradigm is that government agencies are re-considering their operations with a view to moving from being system-oriented to network-oriented. This is important in leveraging off the agencies' structure, functioning, skills and capabilities (OECD, 2007).

However, the major challenge remains in the difficulty of achieving inter-agency integration across and between different levels of government especially across land administration functions (land tenure, value, use and development). This integration is important for making appropriate decisions as contained in the following discussions.

3.5.3 Whole of Government (WoG) approach in monitoring development

Following from the progress made through *connected governance* and the realisation of the limitations of this initiative a *whole-of-government* initiative was introduced by government departments in some national jurisdictions.

Regarding land delivery, some of the initiatives include: e-plan and e-planning. These help develop mechanisms, structure and cultures which will facilitate all parties, especially the referral authorities that hitherto function independently to work together using the same portal (Keast et al., 2004; Mulgan, 2002; Pollitt, 2003; Productivity Commission, 2010). Given the range of issues involved in housing production, it is important to adopt approach that will bring, at least majority if not all, participants to the same table in seeking solutions to and dealing with associated challenges.

The major limitation of whole-of-government approach within the context of this research is that it is anchored upon ICT-enabled public sector governance rather than spatially enabled government. In other words, the approach is data-centric rather than process-centric (Rajabifard, 2010). What is required is a close cooperation among agencies to develop land management policies and thereby improve land administration processes using location data infrastructure as a tool. This concept is popularly referred to as spatial enablement

3.5.4 Spatially Enabled Government and Society

A spatially enabled government is conceived as the one that encourages collaborative efforts of government, people and businesses in the utilisation of spatially referenced data to support evidence-informed policy. This is contextualised from the broader perspective of governance, rather than the bureaucratic stance or individual applications.

A society is considered spatially enabled when 'location and spatial information are regarded as common goods made available to [government departments and agencies] citizens and businesses to encourage creativity and product development' (Rajabifard, 2010:3; Wallace et al., 2006). Realising this objective involves developing an overarching vision and a set of tools. From the perspective of Wallace et al. (2006) the vision involves establishing an enabling infrastructure that will facilitate the linking of business transactions to a *place* or *location*. This is thought to have the potential to facilitate government actions, decisions and policies.

Aligning closely with this perspective, Masser et al. (2007), emphasised that a society must strive to achieve three broad goals to be spatially enabled:

- i. more effective and more transparent coordination. In this regard, citizenry are able to access the spatial information they require to evaluate the choices made by government
- ii. the creation of economic wealth through the development of products and services based on spatial information collected by all levels of government
- iii. the maintenance of environmental sustainability through the regular and repeated monitoring of a wide range of spatial indicators distributed throughout the world as a whole.

Spatial enablement facilitates the evaluation and analysis of relationships between people, business transactions and government (Steudler and Rajabifard, 2012). Enabling infrastructure is underpinned by enabling platform. The development of an enabling platform is considered essential in enhancing the capability of government, private sector and the general community (Rajabifard et al., 2007). This has the capacity to enhance integrated decision-making approaches within a particular jurisdiction.

Specifically in the area of housing production, a nation's capacity to understand housing needs and demands requires improved demographic information linked with geographic

land and building information. To estimate appropriately, housing demand, robust combinations of arrays of data across land administration functions and between different levels of government is required. This is expected to follow the basic principles of spatial enablement. As suggested by INSPIRE (2003:19), an SDI initiative of the European community:

- Data should be collected once and maintained at the level where this can be done most effectively.
- It should be possible to combine seamlessly spatial data from different sources and share it between many users and applications.
- Spatial data should be collected at one level of government and shared between all levels.
- Spatial data needed for good governance should be available on conditions that are not restricting its extensive use.
- It should be easy to discover which spatial data is available, to evaluate its fitness for purpose and to know which conditions apply for its use (development of robust metadata).

In this context, an SDI can act as an enabling platform to facilitate the delivery of spatial enablement. One of the strategies for implementing this is the *i-land* vision.

iLand is a concept of spatially enabled information for modern government. It is composed of five parts: information, integration, interactive internet and institutions (Figure 4.3). The combination of these components provides context for the integration across land administration functions. This finds relevance in the present research as it is considered to impact the way developable land is released for housing production.

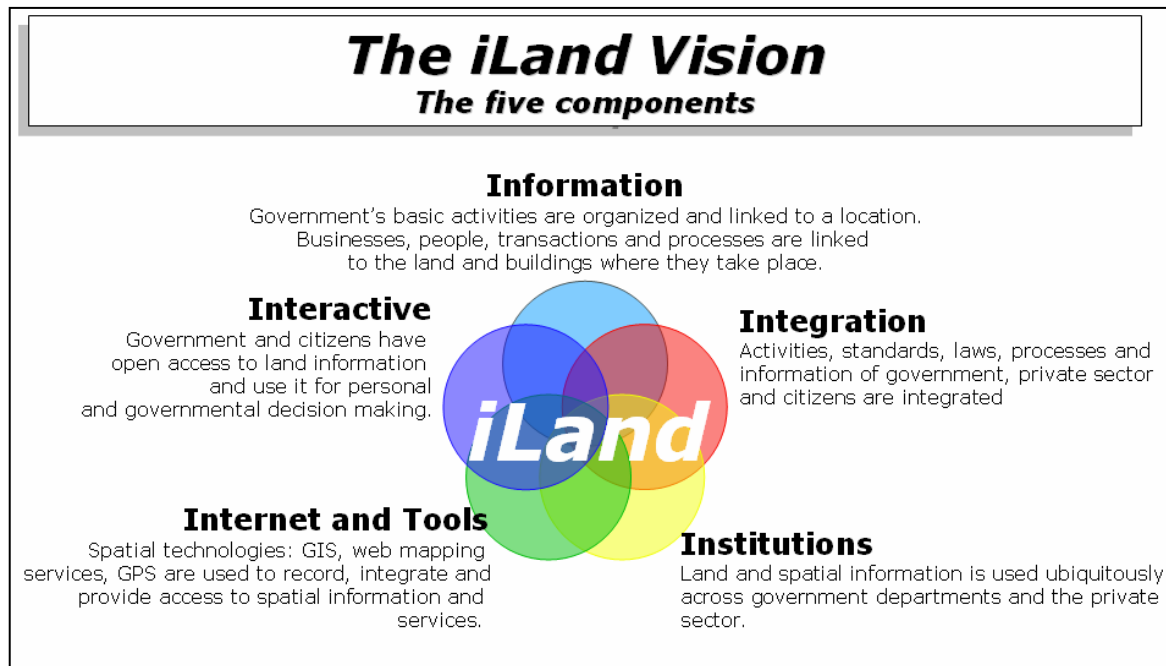


Figure 3.3 – The iLand Vision
Source: Williamson and Wallace (2007)

Overall, this should be set against users' expectations and the realities of delivering a *tangle* and *scalable* outcomes at the operational level. Government should thus aim to provide services that are government-to-citizens or government-to-business and inter-agency communications. There are some specific examples as discussed next regarding innovative tools to implement the integration initiatives discussed above.

3.6 Specific examples: Innovative tools for integration

There are some specific examples of innovative tools to facilitate inter-agency integration. These are being developed by international agencies, respective national governments, corporate and individual investors as well as developers and builders. These initiatives come from different perspectives using different strategies. These initiatives are noticeable at the global, regional, national and local levels. Some of these are now discussed.

3.6.1 Global Initiatives

Through the involvement of some international agencies, UN-HABITAT, Global Land Tool Network, International Land Coalition and Urban Land-Mark, some programmes are initiated. Among the major initiatives at the global level are: security of tenure and the development of good land governance objectives.

- *Global Land Tool Network (GLTN)*

GLTN deals essentially with land policy and focuses on developing appropriate land tools at global scale to implement pro-poor land policies and land reform (UN-HABITAT, 2008). The main objective is to contribute to poverty alleviation and the Millennium Development Goals through land reform, improved land management and security of tenure. With this initiative, UN-HABITAT is mandated to give due consideration to issues relating to security of tenure through MDG 7 and to consider land management through the Habitat Agenda and the Istanbul Declaration, as well as through the UN General Assembly Resolution A/59/484 (UN-HABITAT website)⁶.

With this development, the GLTN develops a global partnership on land issues, aims to adopt a more holistic approach to land issues by improving global coordination on land; through the establishment of a continuum of land rights rather than simply focusing on individual land titling. In particular, through the realisation that securing land right goes beyond land titling and registration, consideration was given to a more inclusive and comprehensive approach of good land governance.

- *Land Governance and the assessment framework*

Land governance as described by Palmer et al. (2009):

‘concerns the rules, processes and structures through which decisions are made about the use of and control over land, the manner in which the decisions are implemented and enforced, and the way that competing interests in land are managed’.

The following eight objectives were developed to describe good governance in land administration. The objectives offer a framework to measure good land governance across and within countries.

The eight objectives as outlined by Palmer et al. (2009) are:

- i). Land policy is in line with principles of fairness and equity.
- ii). A variety of accepted and socially legitimate rights is legally recognised and can be record.
- iii). Land management and associated instruments (zoning and development control plans, conservation plans, etc.) are justified by

⁶ <http://www.unhabitat.org/content.asp?typeid=19&catid=503&cid=3483>).

- externalities and undertaken in an efficient, transparent manner.
- iv). Land administration institutions have clear mandates and operate transparently, cost-effectively and sustainably.
- v). Information provided by the land administration system is reliable, sufficient, and accessible at reasonable cost.
- vi). Management, acquisition and disposal of public land follow clear procedures and are applied transparently.
- vii). Property valuation serves public and market needs and property taxation is clear and efficient in support of policy.
- viii). Judicial and non-judicial institutions are accessible with clear mandates and resolve disputes fairly and expeditiously.

To determine the level of compliant among countries, the *land governance assessment framework* was developed by the World Bank. The framework is concerned with the measurement of performance in the field of land governance against the eight objectives.

The assessment framework was structured into five thematic areas (World Bank, 2010). These are:

- i). Legal and Institutional Framework
- ii). Land Use Planning, Management and Taxation
- iii). Management of public Land
- iv). Public Provision of Land Information
- v). Dispute Resolution and Conflict Management.

These thematic areas contain twenty-one land governance indicators (LGI). Each indicator relates to and measure basic principle of governance. This is further structured into a number of dimensions (World Bank, 2010).

The major challenge within the context of this research, however, is to identify the major issues among these objectives that have potential to promote or impede collaboration among agencies. It will be essential to set parameters regarding how these indicators/dimensions could be measured.

It is equally important to shift focus from tenure, land registration and gender equality and begin to explore the relative importance of other land administration functions (land use and land development). Regarding this, it is argued here that the role of land administration in providing adequate housing is not only about providing tenure security, but, also about providing an integrated system of land administration processes.

3.6.2 Regional initiatives

- *Europe-INSPIRE*

The INSPIRE initiative is currently being implemented by the European Commission operated by the member states of the European Union. It focuses on creating an infrastructure for spatial information in Europe. It is intended to help unlock the value of geographic information across Europe for the benefit of good governance, private business and the citizen.

The components of these infrastructures include: cadastral parcels; network services and technologies; agreements on sharing, access and use; coordination and monitoring mechanisms; and metadata. In terms of the implementation of INSPIRE, it could be can also be seen in the broader context of two other initiatives, Global Monitoring for Environment and Security (GMES) and Group on Earth Observation (GEO). The two initiatives emphasise the need for improved data integration and information management.

However, the major limitation of this initiative is that the intent and contents are more focused on the data sharing consideration with less focus on policies and processes, or even consideration of the actual users of the data. The limitation of adopting this approach is that more pluralistic issues across functions and between different levels of government will be ineffectively covered and analysed. This creates the need for jurisdictional governance and inter-agency collaborative arrangements to deal with more varied and contentious issues such as the compact city debate. The realisation of this challenge led to the Plan4all initiatives. This is a European project co-financed by the e-Contentplus programme of the European Commission. ‘The main aim of Plan4all is the harmonisation of spatial planning data according to the INSPIRE directive’ (Salvemini and Mildorf, 2010:2).

Plan4all is a challenging test bed for INSPIRE. It includes the cooperation of different actors: public and private sectors. Relevant and challenging coordination is required among public administrations at different levels. This is important in order to guarantee a shared solution to improve and solve current problems associated with and in the

critical path of spatial planning. This highlights the importance of bringing together both information and users to facilitate the realisation of spatially enabled society.

- *Permanent Committee on GIS Infrastructure for Asia & the Pacific (PCGIAP)*

PCGIAP, a regional forum of National Mapping Organisations (NMO) was established in 1995 based on the resolution of the 13th United Nations Regional Cartographic Conferences for Asia and the Pacific (UNRCC-AP) held in 1994. It is made up of 55 member countries. It was intended 'to promote communication, cooperation, coordination, and collaboration among NMOs in order to support Spatial Data Infrastructure development at national, regional and global levels' (Kai et al., 2002:1).

The broad aim of the committee is to maximize the economic, social and environmental benefits of geographic information in accordance with Agenda 21 by providing a forum for nations from Asia and the Pacific. The specific objectives as outlined by Kai et al. (2002) are to:

- i). cooperate in the development of a regional geographic information infrastructure
- ii). contribute to the development of the global geographic information infrastructure
- iii). share experiences and consult on matters of common interest
- iv). participate in any other form of activity such as education, training, and technology transfer.

The motivation for the establishment of the Committee was based on the realisation that the aspirations of nations in the region can only be accomplished if good and consistent spatial data are available and readily accessible. Most especially if a significant proportion of the region's economic social and environmental development is heavily dependent upon the use of land and natural resources.

By adopting a regional perspective member nations will not only avoid wasting resources but will be able to provide users with consistent, reliable data that can be used to address issues such as land use conflict, environmental issues and locating mineral deposits. The aim of PCGIAP is clear, and it has been able to record significant achievements since inception. However, as indicated by PCGIAP, there are some challenges that militate against the realisation of this aim. These include:

- i). Mechanisms for sharing experiences about land administration in the region are limited.

- ii). Institutionalised arrangements are broad and varied, just as the willingness of people to adapt to the institutional changes.
- iii). Rapid technological change makes standardisation and cooperation very challenging.

- *SDI Development in Africa*

The advances made towards developing Spatial Data Infrastructures in Africa have reflected the diversity of African countries and the various stages of technological and institutional developments. The various national initiatives as observed by Ezigbalike (2004) have been coordinated by the activities of the Economic Commission for Africa (ECA) and in particular, of its Committee on Development Information (CODI). In addition the initiatives and contributions of such sub-committees: Information and Communications Technologies, Statistics and Geoinformation (CODI-Geo) are crucial and essential.

However, the challenges of developing regional initiatives in Africa have been due to:

- i). lack of awareness by decision makers
- ii). metadata and clearinghouse services in implementing SDIs, and the poor level of overall ICT infrastructure.

ECA has therefore been assisting member states in organising awareness and stakeholder workshops. This includes facilitating workshops in Kenya and Ethiopia; the review of the Natural Resources Management/National Geographic Information Systems (NRM/NGIS) proposal for Nigeria; and supporting the recommendation to reformulate the project and move towards an NSDI. ECA is also facilitating the integration of geo-information into ECA's policy analysis by providing easy and transparent access to geo-information tools, techniques and data products.

The ability to sustain this lies substantially in the willingness of member states, just like in the other regions, towards developing National Spatial Data Infrastructure initiatives.

3.6.3 National initiatives

The initiatives at a national level to integrate land administration focus mostly on the development of a National Spatial Data Infrastructures (NSDI). Some nations are

extending their NSDI capabilities to include a platform to spatially enable planning and government. In this regard, planning portals are being developed. The following discussions examine the prospect and challenges of some of the respective national initiatives. It acknowledges what has been done and in this regard attempt to identify corresponding challenges.

- *ANZLIC: Market Place initiatives*

Australia and New Zealand Spatial Information Council (ANZLIC) is the peak intergovernmental organisation providing leadership in the collection, management and use of spatial information in Australia and New Zealand. An ANZLIC Market place initiative is based on developing a tool for driving spatial services into all sectors of the economy and the community in Australia and New Zealand. It is intended to provide a significant shift from the current, almost exclusive, focus on data to publishing, discovery and access services for data, products, and processes.

These as outlined by ANZLIC⁷ include:

- expansion from a predominantly spatial data focus to the inclusion of all spatial resources – data, products, services and processes
- transition from a predominantly public sector focus to meet the needs of all sectors – public, private, academic and community sectors
- transition from sectoral and jurisdictional silos to a single, integrated regional Spatial Marketplace for Australia and New Zealand
- transition from monolithic roles to discrete roles in a spatial resource value chain or network
- provide an accessible, easy to use services environment that fully utilises and complies with Web 2.0 philosophies/principles and capabilities.

The intent and purpose of initiating the market place programme is to expand the predominantly spatial data focus to the inclusion of all spatial resources – data, products, services and processes, as outlined above. The coverage of ANZLIC at the moment is essentially based on linking the supply and demand of spatial datasets with

⁷ <http://www.anzlic.org.au/>

little efforts to bringing policies and processes together. It does not therefore offer a platform or infrastructure to integrate land administration functions.

- *United Kingdom*

United Kingdom has developed a web portal <<http://www.planningportal.gov.uk/>> that contains all information regarding planning matters in the UK. With this development, every local government is required to develop its own portal to address local requirements. Some of the essential information on these portals includes planning and building regulations, planning permit application, planning appeals on the decision and access to development information for a particular location (Portal., 2010).

To allow decision making more inclusive among all the stakeholders, Ordnance Survey launched OS OpenData in 2011. This was a groundbreaking national initiative. The portal, <<http://www.ordnancesurvey.co.uk/oswebsite/>>, provides free and unrestricted access to a large range of spatial data. With this development, users are allowed to freely download a wide range of mapping and geographic information for reuse and to even develop web-map applications. A significant feature is that it helps people make better use of other government data on data.gov.uk, as well as stimulating innovation in mapping itself.

As noted on the OS website, the move to free up public data is intended to create a more imaginative ways of using the Ordnance Survey data in a way to attract a new set of entrepreneurs. This is also expected to stimulate new solutions to old problems in a way to offer greater benefit to the society. It will also drive a new industry, creating new jobs and driving future growth.

The benefit at this stage is speculative. It could be argued that the underlying motive remains largely to facilitate discovery and access to data. It, however, has the potential to stimulate integration of policies and processes.

- *Australia*

Various levels of governments have initiated in Australia programmes to progress access to spatial data for policies and decision making. Among these is the development of National Spatial Data Infrastructure (NSDI). This has been an ongoing event in the

last two decades, through and with the coordination of ANZLIC. As part of the initiatives, PSMA Australia Ltd, a company with shareholders consisting of each state and territory government, has succeeded in bringing selected land-related disparate datasets from states and territories together. This involves combining spatial data from Australia's governments (local, states/territories, and federal) to contribute to create national spatial information datasets. PSMA has produced six datasets in this regard. These include:

- Administrative Boundaries: boundaries in themes from electoral to suburbs
- CadLite: Australia's 10.5 million land parcels, including suburb names
- G-NAF®: an authoritative index of all Australian addresses
- Points of Interest: everything from accommodation to banks, hospitals to museums
- Post Code Boundaries: official Australia Post code polygon and point data
- Transport and Topography TM: road, rail, rail stations and air infrastructure, parks and water bodies.

The six are fundamental datasets and are thus the building blocks to spatially enable urban planning for city growth and housing production in Australia. However, while these are essential, they are not sufficient for the type of analysis required for housing development. In another development, suggestive of responding to these limitations, the federal and state governments initiated the *e-Government* programme. This aims to provide services that are government-to-citizens or government-to-business and inter-agency communications in ways that are friendly, convenient, transparent and inexpensive. The key is not only in the technology but also more importantly in having data available in the right form.

Part of the *e-government* initiatives is the e-planning projects and services through the development of planning portals. Every state has their unique approach in managing land use through these portals. Attention is gradually shifting from e-government to connected governance and lately to a whole-of-government initiative. As described by the Commonwealth of Australia (2004:2), the whole-of-government concept refers to 'public service agencies working across portfolio boundaries to achieve a shared goal and an integrated government response to particular issues.' WoG is important to develop mechanisms, structure and cultures that will facilitate all parties working

together (Keast et al., 2004; Mulgan, 2002; Pollitt, 2003; Productivity Commission, 2010).

In parallel with these initiatives and the realisation of the challenges of silo base processes, government establishments and departments are motivated to initiate better and improved interactions between different levels of governments in Australia. To this end, the National Collaboration Framework (NCF) was set up in 2002 (Figure 3.4) by the Online Council Officials (OCO) to create the Integrated Transactions Reference Group (ITRG). Accordingly, ITRG was established to:

‘...develop a strategy for delivering integrated services across jurisdictions and to prepare a practical work plan to address the priority tasks’.

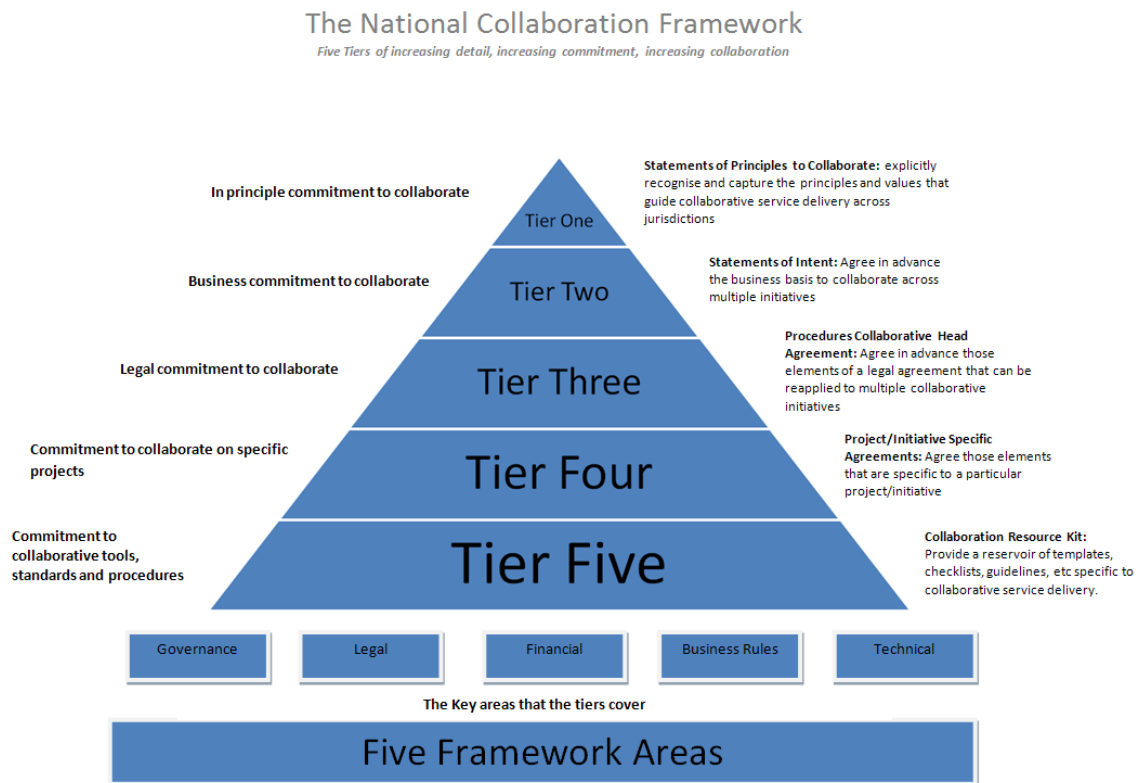


Figure 3.4 – The national collaborative framework

Source: http://www.finance.gov.au/e-government/better-practice-and-collaboration/national-collaboration-framework/docs/NCF_brochure.pdf

As shown in Figure 3.4, the framework is comprised of five areas and cascade to five (5) tiers. Each tier corresponds to different levels of commitment to collaborate.

However, not all efforts have translated, sufficiently, to provide access to reliable, timely, accurate, authoritative and assured data sets. This is expected to be in an integrated format that can assist strategic planning activities or provide harmony to the planning system across the country as intended.

Following from this, there emerged a new way of thinking about planning reforms. Planning Reform requires a fundamental change to the way in which planning and development is undertaken in Australia. A better connection must be established from development assessment through to strategic planning, establishing a line of sight from a national level through to each region and finally a specific site (Figure 3.5)

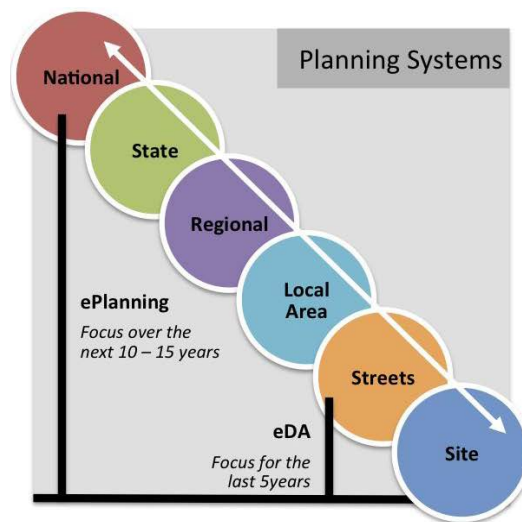


Figure 3.5 – Relationship between the levels of the planning system in Australia
Source: <http://www.eplanningau.com/wp-content/uploadsold/2011/07/National-ePlanning-Vision-2011.pdf>

Figure 3.4 illustrates the relationship between the levels of the planning system in Australia. In the past few years, the focus has been of the e-Development Assessment at the local level. This is considered a limitation to achieving e-planning initiatives. In this regard, there is a need for a paradigm shift.

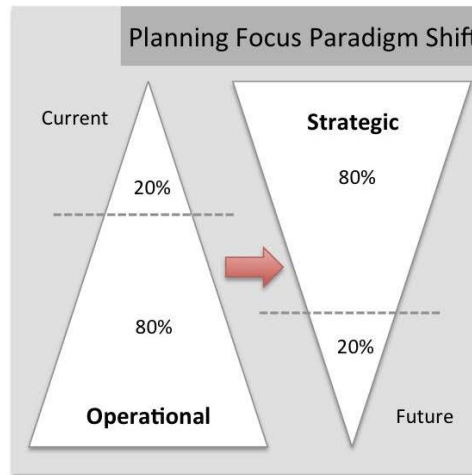


Figure 3.6 Normative Planning focus

Source: <http://www.eplanningau.com/wp-content/uploadsold/2011/07/National-ePlanning-Vision-2011.pdf>

As conceived by e-Planning Australia initiatives, this will require a shift of focus from operational activities with regards to use and development rights concentrating at the local government level, to a more strategic planning focus at the state and national levels Figure 3.6.

- *Nigeria*

There has not been any coordinated approach to managing land in Nigeria, even with the coming into operation of the 1979 Land Use Act. With the Act came into existence a National Land tenure policy; this was followed by the Urban and Regional Planning Decree of 1992. Notwithstanding, the two legislations have had substantial conflicting influence on land management in Nigeria. In parallel to the national legislations guiding land tenure, every state has their unique approach in managing land value, use, and development. Each department and agency has their unique characteristics of managing land administration functions. Most often the agencies are structured in silo formation. The first contemporary approach at bringing land administration functions together in Nigeria came with the introduction and development of Abuja Geographic Information Systems (AGIS). AGIS was established in 2003 to modernise the entire operations of the Land Administration (LA) and other land related departments of the FCTA (Akingbade et al., 2012).

The e-Land Administration services of AGIS include preparation and issuance of Certificate of Occupancy (CofO), provision of textual and graphic data such as land

records, aerial photographs, satellite images, engineering drawings, building footprints, property search and verification of land records. It also includes an application for land allocation, as well as, land and property related revenue collection. Generally, these services are expected to support the implementation of the Abuja Master Plan especially with regards to the provision of affordable housing.

As noted by Akingbade et al. (2012), the observed gain derivable for the e-land admin is considered just moderate relative to the expected gain. Most importantly the beneficial outcomes of e-Land administration does not guarantee absolute housing development in the FCT. References to the formal legal arrangement (Land Use Act), the cultural and informal institutions of the Nigerian society, internet connectivity, power supply and funding are all essential.

In a recent development, the Lagos state government conceived and implemented the GIS enterprise in Lagos, with the development of LAGIS portal. <http://gis.lagosstate.gov.ng/LAGIS/WebPages/Map/MapView.aspx>. The portal contains the following data layers: address parcel, building footprint, cadastral, bathymetric, land use, utilities lines and satellite images. It provides opportunities to uniquely interrogate the fundamental datasets and allows, for the first time, opportunities to generate thematic maps for urban planning and environmental, social and economic issues.

The major challenge, however, is the ability to develop a good geo-spatial policy that will allow sufficient capacity to promote inter-agency integration. Regarding this, the goal will be to target, near real time interactions through update and the use of associated datasets. As it stands presently, there are apparent underlying challenges that have the potential to undermine the realisation of this. First, it is a little concerning at the moment to reconcile the policy contents with the organisational and operational frameworks. Second, the funding arrangement and capacity development for the sustainability of the initiatives need to be thought through.

3.7 Chapter Summary

This chapter discussed various aspects of land administration functions, especially the treatment of the functions as silos by various land administration agencies. Existing

knowledge of inter-agency integration focused on data services with less emphasis on land management policies and land administration processes. The main concerns therefore are that the intent and contents are more focused on data sharing consideration with a less focus on policies and processes, or even the actual users of data.

Most of the existing literature treated land administration from a narrow perspective in a way to assume or suggest it is synonymous with land tenure and registration. By focusing on cadastral and land registration, these past efforts inadvertently promoted the silo approach of managing land right restrictions and responsibilities. There is insufficient knowledge about how the various land administration functions might be integrated in a way that will guarantee efficient delivery of land for housing production in respective jurisdictions.

Other concerns include:

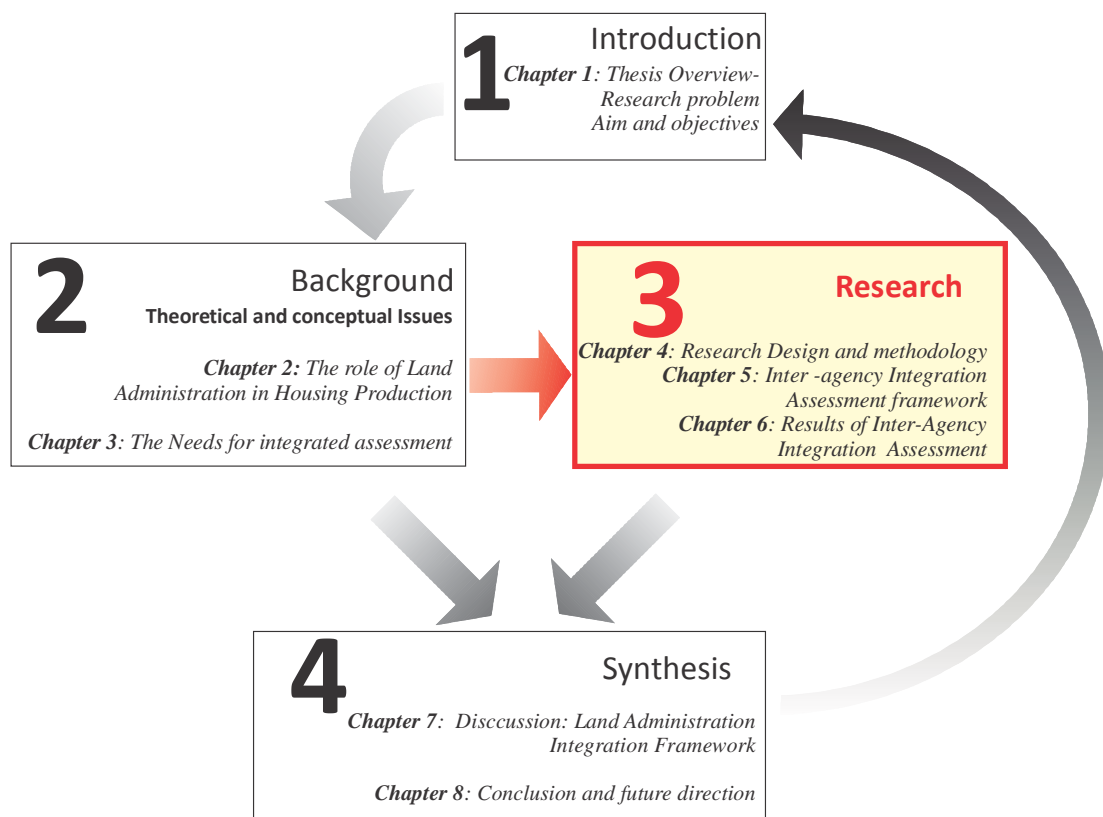
- i. Limited coverage of land use and land development within the context of land administration especially as they affect housing production.
- ii. Insufficient links between different dimensions of land administration silos and inter-agency interactions. The majority of land administration systems in both developed and developing countries focus on each of the land administration functions and the underlying policy as an end in itself. In the United Kingdom and Australia, the functions are stand-alone systems, utilising three *generals*: the Surveyor-General, Valuer-General and Registrar of Titles. The existing legislative framework is deficient in seeking inter-agency integration thus cooperation was not facilitated.
- iii. Ineffective whole of government approach. Within the context of this research the major limitation of whole-of-government approach is that it is anchored upon ICT-enabled public sector governance rather than spatially enabled government. In other words, the approach is data centric rather than process-centric.
- iv. The silo phenomenon allows land administration agencies to operate according to their internal norms and functions. This is considered a significant impediment for developmental projects like housing production, which is multi-

dimensional and thus requires multi-disciplinary analysis and inter-agency cooperation.

- v. It could be inferred from the existing research that the silo effect impacts the way land is managed among agencies and introduce uncertainties and gaps. The historic institutional silos thus need to be examined as this presents a major land administration challenge to most jurisdictions and need to be reorganised.
- vi. Viewing inter-agency interaction as a non-linear practice is not obvious in the existing literature; collaboration between authorities has been seen as mainly beneficial and unproblematic way of working, whereas, inter-agency working should be conceived and depicted as a learning process.

By considering the different issues outlined above, it could be summed that land administration functions are not well integrated. Consequently, land as a resource is not currently managed efficiently or effectively. It is thus imperative to determine the level of this inefficiency as a major consideration in analysing land delivery for housing production. This research is set to fill the identified knowledge gaps. The following chapters discuss the strategies to progress this. Chapter 4 discusses research methodology while Chapter 5 identifies the various aspects and parameters for integration assessment. This culminates in the development of an assessment framework as a tool to explore various dimensions of inter-agency integration.

Part 3



Chapter 4

Research Design and Methodology

“

Every discourse, even a poetic or oracular sentence, carries with it a system of rules for producing analogous things and thus an outline of methodology.

”

- Jacques Derrida⁸

⁸ <http://www.brainyquote.com/quotes/keywords/methodology.html#vzWI0S7H55vRE0yz.99>

4.1 Introduction

A snapshot of background information, theoretical and conceptual issues in land administration and housing were presented in Part 2. By returning to the underlying research problem, Chapter 4 explains the methodological strategies, research process, and detailed approaches for answering the research question.

The chapter starts with a discussion on overarching research process that underpins this research. The research methodology is discussed in section 4.3 by focusing on the qualitative, quantitative and mixed method approaches. It briefly explores the research techniques and establishes grounds for the adoption of various choices that are made in the preparation and implementation of data collection. Section 4.4 describes the methods for data analyses. Section 4.5 discusses the process for undertaking the synthesis of results, especially the process for the validation and application of integration assessment framework. The latter part discusses general issues around the ethical considerations.

4.2 Research Process

In order to respond to the research question: how could the improved integration of land administration across functions (land tenure, land value, land use and land development) and between different levels of government, facilitate land delivery for housing production? The research is designed and structured in five stages (Figure 4.1).

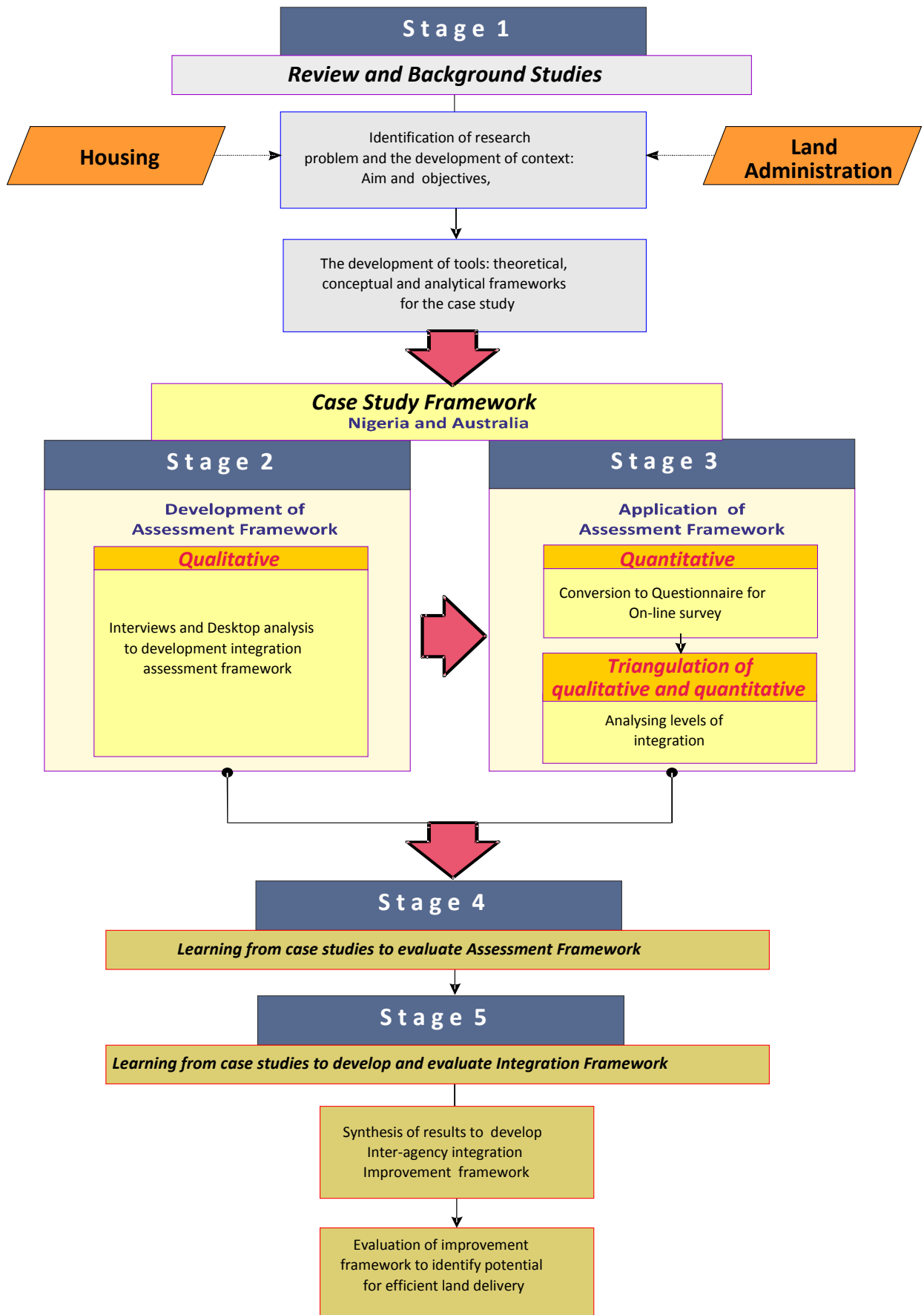


Figure 4.1 – Research Process

As shown in Figure 4.1, the research starts with the review of background literature (Stage 1). The review focuses on two broad areas: land administration and housing. The land administration component involves extensive study of the land management paradigm that underpins the *theoretical framework*. The housing component involves a review of the fundamentals of housing. This includes the concept and processes of housing production. The combination of the two areas led to the development of the *conceptual framework*. This establishes the link between land administration and housing production (research objective 1). Stage 1 also includes the development of an analytical framework. Achieving this requires the combination of *theoretical and conceptual frameworks* in parallel with preliminary study of case studies (Australia and Nigeria) through interviews.

Stage 2 focuses on the development of the *land administration inter-agency assessment framework* (research objective 2). The assessment framework provides a platform to assess the interaction of processes and the collaboration of agencies in the management of land for housing production. This stage combines the elements of stage 1 to develop aspects of land administration integration. It also involves identifications, description and classification of parameters (*measured variables*) for assessing levels of integration. These are derived from synthesis of different themes through: desktop research; literature searches; and the responses from a semi-structured interview of some selected key participants involved in land delivery for housing.

Stage 3 involves the conversion of the integration assessment parameters into an online survey for use as a tool for assessing the level of land administration integration for housing production. This is made up of two components. One of these deals with the assessment of the current level of integration, while the second component involves the measure of perception regarding the desired level of inter-agency collaboration. At this stage, considerations were given to issues of ethics, sample size, sampling techniques, and statistical tools for analysis. Stage 3 also focuses on the application of the inter-agency assessment framework to analyse the level of inter-agency integration (research objective 3).

Stage 4 analyses the level of integration through the identification of dominant themes in each case study. It focuses on integrating land management policy considerations, land administration processes and spatial data infrastructure. The effectiveness of IIAF

as a tool for assessing level of integration is evaluated. Subsequently, in Stage 5, a LAIFH *is developed* as a means to improving inter-agency integration. The framework is then evaluated using the existing strategies for land delivery in the study and presented as demonstrators.

The research workflow is illustrated in Appendix II. It shows the sequencing of *theoretical*, *conceptual* and *analytical* frameworks and how these lead to the development of LAIFH. The next section describes the research methodology and the selection of research approaches.

4.2.1 Research Methodology: selection of research approach

The field of engineering substantially supports the positivist approach of knowledge development. Positivism declares that the only way to authenticate knowledge is through positive verification. It uses scientific approach to accomplish this. However, applying purely positivist approach to issues that have social and institutional dimensions is found to be inadequate. Thus the *realist* approach is considered to be consistent with the central issues discussed in this research. Realism is concerned with the investigation of underlying mechanisms and structure of the social relations while still using a scientific approach. It seeks to understand the underlying mechanisms of policy and practice. As such, realism approaches of knowledge development, as described by Kitchin and Tate (2000), are based on the ‘understanding of what produces changes, what make things happen or what allows or forces changes’. Realism uses mixed qualitative and quantitative methods.

In this regard, and given the nature of enquiry as well as the range of issues, the mixed methodological approach and a case study framework is considered most desirable for this research.

This section examines the context of both qualitative and quantitative methods within the background of the already identified research questions. By considering this, the overall research design framework incorporating the mixed methods approach is then discussed, first, by considering the utility of each of the qualitative and quantitative methods and then by justifying the adoption of the mixed method.

- ***Qualitative Methods***

The qualitative method explores the bases for collaboration among land agencies. It also provides in-depth insights to the determination of parameters for inter-agency interactions. The use of a qualitative approach is considered an appropriate method to investigate why the four land administration functions are not adequately facilitating housing production. In other words, the organisation of housing production within a jurisdiction provides context for understanding the interactions between land administration functions. Within this frame, the method will assist to understand the way actors (landowners, developers, planning authorities/government, and objectors) make sense of what is happening in their respective jurisdictions with particular reference to land preparation for housing production.

Due to the potential of the method to allow for the investigation in depth perspectives of participants', it contributes to explaining their activities. This is in particular to the assessment of level, adequacy, successes and failures of interactions between the agencies. This provides opportunities to assess the implementation of agencies' policy objectives as well as the processes involved and even what is considered a success or failure in the respective jurisdictions.

The major limitations of this approach, however, as noted by Kaplan and Maxwell (2005) are validity and data overload problems. This is made worse when the process is cyclical. This research is mindful of these limitations by keeping within the limit of themes that guide through the selection of what is relevant and central to the focus of the research. In addition, the approach is complemented with quantitative methods.

- ***Quantitative Methods***

As described by Thomas (2003), quantitative methods focus on 'measurements and of the characteristics displayed by people and events that the researcher studies'. The aim is to classify features, count them, and construct statistical models as a condition for explaining what is observed (Bryman, 2004). The quantitative methods also have the ability to, efficiently, include a large number of raw and processed numeric data and the ability to analyse variables methodically and quickly using computing methods. Through this procedure, the potential to assist in the identification of key factors, correlations and trends are possible.

In this research, the assessment framework was converted to a questionnaire format and made amenable to an online platform. In addition, published sources through different agencies and departments are considered. These organisations (Tables 4.3 and 4.4) were identified through their involvement with land and housing related matters as identified through the preliminary interviews. These are intended to evaluate the inter-agency integration framework by assessing the performance of the agencies relative to their policy objectives in facilitating housing production (see Chapter 7).

The major limitations of the approach are the issues around measurement error. This research is mindful of the inherent weaknesses of this approach, in this regard, the measurement scales are specifically structured (section 4.3.3). However, while the design approach and application of quantitative methods may differ significantly from qualitative methods, both are systematic in their approach. They both provide the opportunity to view phenomena through different lenses. This serves as the basis for the adoption of the mixed method approach as used in this research.

- ***Mixed methodological approach***

The mixed methodological approach combines the qualitative and quantitative methods to facilitate improved understanding of the level of interactions between the agencies. The qualitative approach provides insights to the human elements of the processes among agencies. In this regard, a mixed method is adopted which involves *data source triangulation* (by considering the data gathering techniques to remain the same in different contexts), and *methodological triangulation* (adoption of one approach that is closely linked with another, to increase confidence in the interpretation) following Denzin and Lincoln (1994).

The mixed method is thus specifically designed to address each of the research questions; while at the same time, considering the overall research focus. An important consideration when using a mixed method approach, however, is the way they are combined (Brannen, 1992). Bryman (2004) identified three possible approaches to combine them: the prominence of quantitative over the qualitative; the prominence of qualitative over the quantitative; or the equality of qualitative and quantitative. On the basis of this, Creswell et al. (2003), propose six design typologies through the application of four criteria: implementation, priority, stage of integration and theoretical perspective.

For this research, the qualitative and quantitative studies are considered approximately of equal importance. In this regard, the two approaches are complementary. The procedure will be applied at the design, analysis and interpretation of results for each of the case study areas. This is premised on the expectation that qualitative case studies directed at assessing the roles of land administration in housing provision will provide useful insights for understanding of, not only the issues but also, the context within each national jurisdiction. This provides the basis for the analysis of results in stages 3, 4 and 5 as discussed in the research design.

- **Steps and resources in implementing the mixed method approach**

The following steps are considered for the adoption of mixed method approach (Table 4.1).

Table 4.1 implementing the mixed method approach (Evaluation of Model)

SN	Steps	Resources
1	Identification of government policies that impact housing production at the federal level and the implications on the other levels of government and across land administration functions	Government websites, books, government reports, newspapers, independent reports
2	Identification of government policies at the state level and the implications on local government across land administration functions	Government websites, books, government reports, newspapers, independent reports
3	Identification of local government policies that have implications for housing production across land administration functions	Government websites, books, government reports, newspapers, independent reports
4	Identification of federal, state and local government departments and agencies set up to implement the corresponding policies	Government websites, books, government reports, independent reports Interviews
5	Assessment of the interaction between land management policies, land administration processes, and data infrastructures across land administration functions and between levels of governments	Online resources: Government websites, government reports, independent reports and on-line comments Questionnaire (online survey) and Interviews

4.2.2 Case study framework

This research adopts case study approach and selected Melbourne - Australia and Lagos Nigeria.

- **Justification for case study framework**

There are two overriding reasons for adopting case study approach (Yin, 2004), first, when a particular research addresses either a descriptive question – *what* happened? Or an explanatory question – *how* or *why* did something happen (Shavelson and Towne, 2002)? The second reason is that a case study method helps to make direct observations and collect data in natural settings, compared to relying on *derived* data (Bromley, 1986).

The case study approach, in this research was selected to use the organisation of housing production within jurisdiction to provide context for understanding the interactions between land administration functions for a number of reasons. In particular, land administration could be studied within the jurisdictional context and provides the opportunity to learn from current approaches and practice (Benbasat et al., 1987; Maxwell, 1996).

The case studies of Nigeria and Australia offer distinct but contrasting contexts. As conceived, there will be a limited value attempting to make parallel comparison between the two countries. It will rather be useful to isolate common themes, in the two contexts, as learning tools to gain improve understanding of the level of inter-agency integration. The emphasis is to use improved knowledge of the organisation of housing in these different contexts to develop a more generic integration improvement framework. The decision to use predominantly formal (Australia) and informal organisation of land is based on the assumption that the mid-range situation or scenarios will be accommodated by the research findings. It is thus anticipated that it will assist in the development of a more generic integration framework.

Yin (1994) identified six primary sources of verification for case study research: documentation, archival records, interviews, direct observation, participant observation, and physical artefacts. For the purpose of this research, documentation, archival records and interviews; in addition to questionnaire survey, will be adopted.

4.2.3 Case study selection

There are three broad classifications of a country's development (UNDP, 2009). These include: developed, newly emerging industrialised countries (nations with economies more advanced and developed than those in the developing world, but not yet with the full signs of a developed country) and the developing countries. For the purpose of this

research, a country each for developing and developed countries is selected by particularly taking into consideration, those criteria indicated in Table 4.2.

Table 4.2 Parameters for the Choice of Case Study

Case Study Framework: Mixed Method Approach	
Qualitative: Context Perspective	Quantitative : Level of integration
Instruments for data collection <ul style="list-style-type: none"> • Structured interview • Published data 	Instruments for data collection <ul style="list-style-type: none"> • Desk study <ul style="list-style-type: none"> • Documentary data • Questionnaire survey • Published data • Archival data
Criteria for selection of cases <ul style="list-style-type: none"> • English speaking — ease of conversation • High incidence of population growth • Must be one of the cases in the quantitative sets 	Criteria for selection of cases <ul style="list-style-type: none"> • Availability of a data sets • Higher probability of response to data requests • Federal system of government (federating units)

For the purpose of case study selection, a finer grain of classification as revealed in the Human Development Index, shown in Figure 4.2, provides some insights.

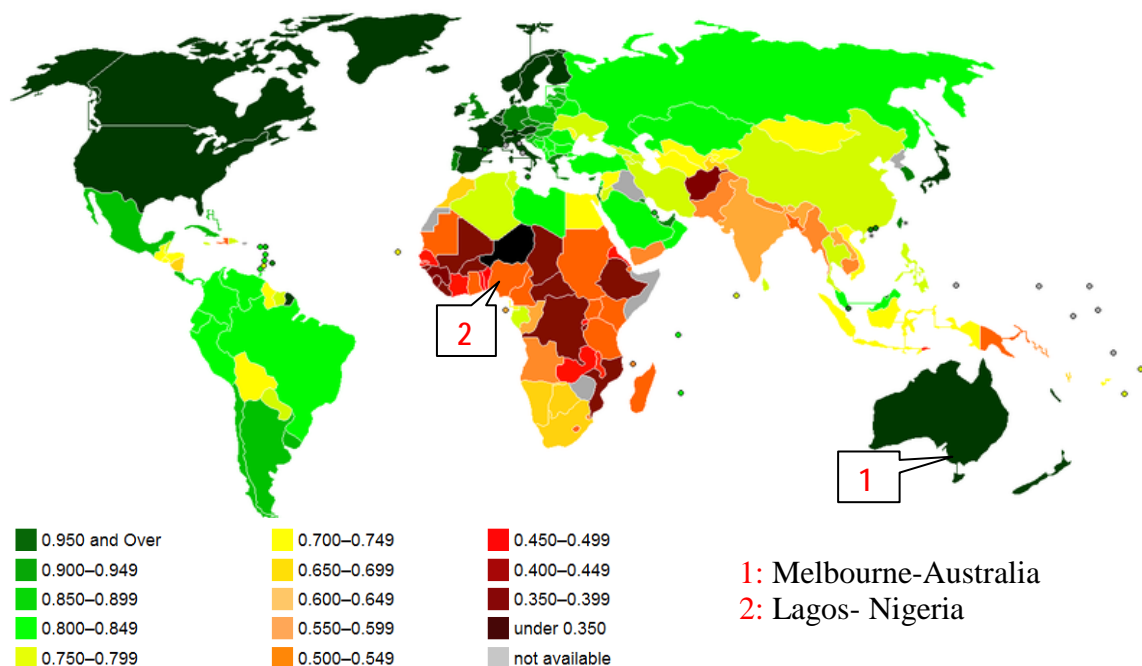


Figure 4.2 – The World Map of Human Development Index based on 2007 Data
Source: UNDP (2009)

The Human Development Index (HDI) is used to rank countries using statistics collected at a national level and composed of data computed from the *life expectancy*, *education*, and *Gross Domestic Product*. The composite statistic is thus used as an index to rank countries by level of human development. Such index classifies the countries as: developed (high development), developing (middle development), and underdeveloped

(low development) countries. For the purpose of this study, a country each is selected from 0.5 – 1.0 range and between 0.5 – 0.0 range. In this regard, *Australia* and *Nigeria* are selected.

In addition to the HDI, Australia and Nigeria are selected considering the land use planning structure in the two countries. The Australian planning model, like Nigeria is an amalgam of the British and American planning systems that combines the discretionary and zoning planning systems. Australia is also composed of federated states like Nigeria and there are similarities in terms of high incidence of population growth in the major cities. The states of Lagos – Nigeria and Victoria – Australia are selected because of their high incidence of population growth and the higher population densities relative to the average population density for other states within the respective countries. Melbourne and Lagos metropolis are selected because of their status as the state capital and the challenges of land management for residential development in both cities.

However, contextual differences in political, legislative systems, culture, and the level of development are recognised. The differences in context provide opportunity to explore prospects and challenges regarding land delivery for housing production. It also offers opportunity to closely examine the interactive impacts of different housing production tracts and land administration processes. The ultimate aim is to use the knowledge to develop a more generic and appropriate intervention strategies, within a broader spectrum, necessary to facilitate delivery of land for housing production.

Yin (1994) notes that case studies are widely utilised and have many benefits. Among the benefits in this instance is the ‘economy of scale’ in terms of the total cost of data collection and analysis.

4.3 Data Collection

4.3.1 Qualitative approach - structured interviews

Having selected the case study countries it is also important to select cases within each country selected. On the basis of this, a state is selected from each country under consideration. Some local government areas were also selected within the capital city of the selected states. The selections cascade from a country to state level and finally to local government areas, thus representing the different levels of government.

- **Australia**

The case study selection for qualitative study is targeted at providing insights into the inter-agency interactions. In particular, it is structured to determine and evaluate the parameters for measuring the level of interaction. It later progresses into applying the measurement items to determine the level of integration in a more quantitative way.

The case study selection objective is to cover, as much as possible, the different areas that correspond to the inner ring – Brownfield redevelopment; middle ring Greyfield – regeneration; and the outer ring – Greenfield development. The rationale for this is based on the assumption that the land release strategies for these different areas respond to different circumstances and will possibly require specific treatment. By considering this, the following local councils were included in the qualitative studies:

- Greater Dandenong Council (outer-ring)
- Monash City Council (middle-ring)
- Moreland City Council (inner-ring)
- Based on the *a-priori* knowledge of activities of Melbourne City Council through the Census of Land Use and Economy (CLUE) initiatives, as well as, its peculiarity of its being the CBD, Melbourne City Council was also considered for inclusion.

To provide for a broader insight, other government agencies and departments were also considered for inclusion in the interview. These included:

- MAV- Municipal Association of Vitoria
- VicRoads
- Department of Planning and Community Development (DPCD)
- Australian National Housing Supply Council

In parallel to the structured interview, a desktop analysis of secondary data was conducted. Subsequently, the following organisations were identified (Table 4.3). They were considered to have a role in land administration that affect the delivery of land for housing production. These organisations were contacted to determine the level of interactions in the subsequent online survey.

Table 4.3 Identified organisations impacting on land delivery for housing (Australia)

Hierarchy of government	Departments, Agencies, Corporations and Authorities	Role for land supply
Commonwealth	Australia Tax Office	Charges
	Council of Australian Government (COAG)	Policy
	Peak/Professional Bodies	Management
	Department of Infrastructure and Transport	Land use/ Policy
	Major City Unit	Land use/ Policy
	Department of FaHCSIA	Housing Policy
	Dept of Sustainability, Env., Water, Pop. & Community	Policy
	Australian National Housing Supply Council	Analysis
State	Department of Finance and Deregulation	Finance
	Department of Sustainability and Environmental	Policy
	Land Registry	Registration
	Valuer General	Valuation
	Department of Planning and Community Development	Land use
	Department of Transport	Referrals
	Growth Area Authority	Land use
	VicRoads	Referrals
	VicTracks	Referrals
	Melbourne Water	Referrals
	VicUrban	Developer
Local Level	Local Council Statutory Planning Units	Land use
	Local Council Strategic Planning Units	Land use
	Municipal Association of Victoria	Peak Body
	Save our Suburbs	Community
	Community-based organisations	Community

Their levels of interactions and the approximate interdependence of roles were later assessed using the quantitative approach.

- **Nigeria**

The issue of Brownfield redevelopment appears not be a major consideration in Nigeria especially in Lagos. The major focus within the established areas is slum upgrading. In parallel to established areas are the development corridors where the bulk of the Greenfield developments are located. With this in mind, Lagos was subdivided along the development corridors: Lekki-Epe, Badagry, Ikorodu-Agbowa, Mowe-Ibafo and the Sango-Otta axes. Each of these areas is also found to exhibit its peculiar characteristics: ranging from predominantly poor, unorganised, sporadic development to more organised communities. This informs the choice of local governments that were

included in the interviews. Some identified land agencies within the following local governments were considered for inclusion in the interview.

- Ikeja
- Lekki-Ajah
- Ikorodu
- Ajeromi-Ifelodun

Through the preliminary study (documentary evidence and interviews), the following ministries, departments and agencies were identified as potential players in land delivery for housing (Table 4.4). The expected roles of each, prior to the online survey are also indicated. These key players were identified and included in the sample for the questionnaire survey

Table 4.4 Identified organisations impacting on land delivery for housing

Hierarchy of government	Ministries, Department, Agencies, and Parastatals	Role for land supply
Federal	Federal Ministry of Lands and Housing	Housing Policy
	Federal Ministry of Survey	Policy
	Federal Ministry of Transport	Policy
	Nigerian Police	Land holders
	Ministry of Defence	Land Holders
	NITEL (Telephone)	Referral
	PHCN (Electricity)	Referral
State	Lagos State Ministry of Housing	Housing Policy
	Lagos State Ministry of Physical Planning and Urban Dev.	Land use
	Lagos State Ministry of Environment	Env. Policy
	Lagos State Ministry of Economic Planning and Budget	Finance
	Lagos State Ministry of Transport	Policy
	Directorate of Survey	Land Survey
	Directorate of Lands	Registration
	New Town Development Authority (NTDA)	Land Dev
	Urban Renewal Authority	Land+ housing
	Lagos State Water corporation	Referral
	Lagos State Transport Mgt Authority (LASTMA)	Key
	Lagos State Ministry of Science and Technology	Referral
	Lagos State Water Corporation	Referral
Local	District Planning Offices	Land use
	Local Planning Offices	Land use
	Indigenous land owners (Omo Onile)	Land holders
	Community-based organisations	Community

4.3.2 Quantitative Approach: Australia and Nigeria

This is essentially intended to assess the level of inter-agency interaction. The integration assessment framework was converted to questionnaire format and in a form amenable to the online survey (Appendix V). It targeted land agencies and referral authorities across land administration function and between different levels of government.

The questionnaire consists of six parts as follows:

Part 1 – Details of Organisations

Part 2 – Policy priorities of organisation (economic, environmental and social policy considerations)

Part 3 – Interdependence of agency interactions

Part 4 – Level of inter-agency collaboration regarding land management policies

Part 5 – Level of inter-agency collaboration regarding land administration processes

Part 6 – Level of inter-agency collaboration regarding Spatial Data Infrastructure and services

4.3.3 Measurement scales

The scale of measurement provides platform to measure the level of inter-agency integration in a more discrete and objective form. The following measurement scales are combined for the assessment of inter-agency integration. *Guttman Scales* (Cumulative Scales) allows for the ordering of items from low to high. To, correctly, select appropriate response among the items implies approval or success of all prior ones. The list contains items that are cumulative so that the respondent either agrees or disagrees. By selecting any item on the scale means, the respondent probably agrees to the previous statements. The major disadvantages of Guttman Scales are: it is difficult to construct; it may be too restrictive as only a narrow universe of content can be used.

Semantic Differential Scaling offers other option. It is concerned with the 'measurement of meaning', the idea or association that individuals attach to a word or phrase. Semantic Differential Scaling is made up of three main rating factors. These are: the evaluative factor (good-bad); the potency factor (strong-weak); the activity factor (active-passive) (Osgood et al., 1957). The major advantage is that it allows several types of analyses to take place. However, if not well constructed the analysis could be too complex.

Likert Scale (Summated scale) is a psychometric scale commonly used in questionnaires. It requires the individuals to make a decision on their level of agreement. Most often five-point scale (i.e. Strongly Agree, Agree, Disagree, Strongly

Disagree) is used. This, however, varies depending on the context of analysis. The corresponding number becomes the value for that response and the total score is obtained by adding the values for each response. This is the reason why they are also called 'summated scales' (Dumas, 1999). Likert Scales has the potential to communicate interval properties to the respondent; and therefore, produce data that can be assumed at interval scale (Madsen, 1989; Schertzer and Kerman, 1985). The major limitations as presented by Newman (1994) are that: respondents may be susceptible to *central tendency bias*; agree with statements as presented (*acquiescence bias*); or try to portray themselves or their organisation in a more favourable light (*social desirability bias*).

The research combines the good attributes of each scale to develop the integration assessment matrix in Chapter 5.

4.3.4 Data collection techniques

Data collection strategies involve the conversion of the integration assessment matrix to a web-based questionnaire in the form of an online survey using the survey monkey platform.

– Pre-testing and refinement

Prior to the distribution of the survey questionnaire, it was tested internally among research colleagues and externally through the selected government departments (local, state, federal and peak bodies). This becomes necessary to check for terminology and the understanding of questions being asked. It was also intended to ensure that responses were being recorded appropriately.

The adoption of a digital collection of the data was to facilitate ease of response and thus a higher return rate. The data from the questionnaires was automatically collected into the survey monkey platform. This process was extremely effective as it eliminated coding and transcription errors and facilitated direct transfer to the SPSS, UCINET, PLS-Graph, analytical platforms and software.

– Pre-census letters

To increase the response rate, a pre-survey letter (Appendix III) was sent to Council CEOs, the referral authorities, government departments and agencies (state and federal) advising them of the project and pending surveys. The letter sought support and participation in the study. It requested the nomination of senior staff members to

represent appropriate units/departments to participate in the survey. This was important, as it was critical that the questionnaire was sent to the appropriate contact person rather than the indiscriminate targeting of staff members in respective organisations.

As derived from the literature and interviews conducted, the development of inter-agency assessment framework involves different levels of interactions. This means there could be more than one potential participant within a particular organisation to participate in the survey.

Due to this, participants were sought from units that deal with: strategic, statutory and infrastructure planning within the identified organisations (Table 4.3 and Table 4.4). To, effectively explore the level of interaction, each unit/department was asked to identify among the list of organisations provided, who has the most significant role in land delivery for housing production in relation to their own unit or department.

4.3.5 Determination of sample size

It is important to select, as much as possible, a true representation of the sample frame. This is to avoid possible outcomes of making Type I or Type II error (Carmen et al., 2007). In this regard, a sample of 28 local councils was selected from a universe of eighty-one local councils in Victoria. The selected councils included all the local governments in Metropolitan Melbourne. The regional local governments were not included in the selection.

This procedure was also repeated in Lagos, Nigeria. The mega city area is made up of eighteen out of the total twenty local government areas. All of the eighteen local governments were considered for inclusion.

- **Questionnaire distribution and response rate**

The online survey was conducted between May 2011 and December 2011. At the local level, contacts were made with the 28 Melbourne metropolitan councils, and the 18 Lagos metropolitan councils.

In Australia, 26 out of 28 local councils in Melbourne responded to the pre-survey letters. Two did not respond. Out of the 26 that responded, four declined participating in the survey. Although 22 local councils provided contact details as requested and participated, but only 20 valid responses, representing 71.43% (of the 28 metropolitan

councils) were included in the analyses. Two responses were not complete and thus not included in the analysis. Several units within the key departments that deal with land administration issues at the state level and federal levels were also contacted. Overall, 12 and five states and federal departments/units respectively provided useful responses that were included in the analysis.

In Nigeria, 14 Local Planning Offices and six District Offices in Lagos responded to the survey letter and provided contact details as requested. 63 responses were received including ten responses that were rejected as either incomplete or invalid. Challenges associated with internet access, speed and connectivity could potentially be responsible for the incomplete responses. In addition to the local government, valid responses were received from 27 state lands and housing related agencies, as well as, 11 at the federal level.

Overall, the responses were considered very satisfactory given the details requested in the questionnaire and the diversity of government agencies involved. See Appendix V for full details of the questionnaire. The analyses of level of inter-agency integration are presented in Chapter 7.

4.4 Data Analysis

The following analytical tools were adopted to gain improved understanding of inter-agency interaction in the study areas:

- Social Network Analysis(SNA)
- Descriptive analysis
- Structural Equation Modeling (SEM) with Partial Least Square (PLS) estimation.

4.4.1 Social Network Analysis (SNA)

Social Network Analysis (SNA) is used to explore the current levels of inter-agency interactions between land and housing agencies. It evaluates the nodes of connectivity between agencies.

There are different variants of network analyses; each depends on the nature and context of analysis (Bardach, 1994). The most popular is the Social Network Analysis (SNA). It provides both a visual and a mathematical analysis of human relationships. This offers

opportunity to determine relative location by finding the *centrality* of a node. Determining and evaluating the centrality provides insight into the various roles and groupings in a network. Also determined are the clusters of groupings; the composition of the clusters; and the position of members of the clusters relative to the core of the network or the periphery. The key analytical tools of network analysis are: *degree centrality* (this measures the number of direct connections a node has); *betweenness centrality* (this refers to the strategic location of a node relative to other nodes; and *closeness centrality* (this measures the shortest path to all the other nodes).

Using these tools provide required qualitative measures for characterising the network. It also has the capacity to provide qualitative information on the behaviours of its parts (nodes) through visualisation and interpretation of data flows (Vandenbroucke et al., 2009).

4.4.2 Descriptive Analysis

Descriptive statistics are essentially used to explore data collected, to summarise and describe the datasets; the most popular being frequency distributions. The utility of this approach is that it is easily adopted to make general observations about the data. The frequency of occurrence of each score value could be represented in tabular form or in graphical form for visual clarity (Coakes and Ong, 2010). Other descriptive analyses focus on the measure of central tendency (mean) and variability (range, standard deviations and variance).

4.4.3 Structural Equation Modeling (SEM) with Partial Least Squares (PLS) estimation

Structural Equation Modeling (SEM) is a statistical model that seeks to explain the relationships among multiple variables. It is adopted in this research to validate the assessment parameters for the assessment of inter-agency integration. As described by Hair et al. (2006), SEM has the ability to estimate a series of separate, but interdependent, multiple regression equation simultaneously by specifying the structural model.

Partial Least Square (PLS) performs a *Confirmatory Factor Analysis* (CFA). PLS is a structural path estimation approach (Chin, 1998). It requires development of latent variables to effectively estimate the structural path. Latent variables are research

constructs that cannot be measured directly. They include variables such as beliefs and perceptions. It is, however, important to determine the validity of the constructs. SEM-PLS approach provides the opportunity to achieve this. The application of SEM-PLS is equivalent to performing factor analysis and regression analysis in one step. It is used in this research to analyse the multi-dimensional interaction between land agencies and in this regard validate the assessment framework. This is accomplished through the assessment of the perception of different land agencies with regard to inter-agency collaboration.

4.5 Synthesis of results

Essentially, there are three major outcomes of this research: the development of inter-agency integration assessment framework, the assessment of the level of inter-agency integration, and the development of LAIFH. Each of these is now discussed.

4.5.1 Development of inter-agency integration assessment framework

This specifically focuses on identifying and discussing parameters of land administration integration from the perspective of housing production. The three main areas of integration (policy, processes and data infrastructure) as derived from the land management paradigm provided the structure for the assessment framework. As presented in Chapter 5 the assessment framework is used to identify, describe and classify the parameters for assessing level of integration as derived from significant themes that emerged from literature and the qualitative study through structured interviews.

4.5.2 Assessment of the level of inter-agency integration

This involves the analysis of inter-agency interaction in the case study areas. Here the profiles of the case studies (Australia > Victoria > Melbourne and Nigeria > Lagos State > Lagos Mega-City) are presented as backgrounds to understand the context. The integration of land management policies follows from this. Later, rigorous analyses of land administration processes in the two national jurisdictions are undertaken. The policies and the data services are evaluated within this frame. This is to provide better ways of analysing and communicating, with the stakeholders, the challenges and prospects of land administration for housing production.

The assessment tool is structured into questionnaire format. The questionnaire (see Appendix V), is arranged in five parts and included questions on: policy priorities of organisation; interdependence of agency interactions; inter-agency collaboration regarding land management policies; inter-agency collaboration regarding land administration processes; and inter-agency collaboration regarding Spatial Data Infrastructure and services (Table 4.5).

Table 4.5 The structure of the integration assessment questionnaire

Questionnaire Component	Topics Covered	Analytical tools
Part 1 – Policy priorities of organisation (economic, environmental and social policy considerations)	Organisations' profile and an assessment of economic, environmental and social policy considerations	Descriptive Analysis
Part 2 – Interdependence of agency interactions.	The assessment of agencies' interrelated roles and interactions regarding land administration, housing production and urban development.	Social Network Analysis (SNA)
Part 3 – Level of inter-agency collaboration regarding land management policies	Economic considerations, environmental considerations, and social considerations	<i>Descriptive:</i> Total mean difference <i>Inferential:</i> Paired Samples Correlations (T-Test) <i>Modelling and validation:</i> Structural Equation Modelling with PLS-GRAPH
Part 4 – Level of inter-agency collaboration regarding land administration processes	Communication between agencies, public participation, organizational structure, commitments and responsibility, resources of the agencies, dispute resolutions, capacity building	
Part 5 – Level of inter-agency collaboration regarding Spatial Data Infrastructure and services	Data creation: collection format, data coordination and information flow, storage and maintenance of data, technology and technical issues, data services funding/pricing model, spatial datasets dissemination and use	

The case study areas (Australia and Nigeria) provide context for the assessment of inter-agency interaction as presented in the following sections. This offers contextual understanding of inter-agency interactions in land administration for housing production.

4.5.3 Development and evaluation of LAIFH

After the completion of the case studies and questionnaire analysis, the results are integrated to develop LAIFH, which is presented in Chapter 7. The structured interview assisted in developing the inter-agency integration assessment framework by providing a classification of parameters for assessment. The assessment framework is evaluated within the scope of results of empirical analyses, through the descriptive and inferential

analyses as presented in Chapter 7. This enables a clearer understanding of the interactions between land management policies, land administration processes and data infrastructure.

The perspectives gained from the qualitative approach assisted in answering some of the research questions relating to ‘*how*’ and ‘*why*’ agencies could be better integrated. It also allowed a deeper engagement with the prevailing interactions across land agencies and between different levels of government. The triangulation of methods utilised multiple sources of evidence including existing theories, case studies and survey results to inform the final framework. The grouping of the identified factors, based on the assessment of the level of integration, provided opportunities to progress the research towards the development of a LAIFH.

Three key components: contextual factors; collaborative process; and housing outcomes were identified; and specific demonstrators were developed to evaluate the application of the integration framework. Two demonstrators: *housing development potential analysis and visualisation*, and the *analysis of development assessment approval* were developed to put forward scenarios for the application of the framework. The demonstrators showcase the values of integration of data infrastructure and land administration process.

4.6 General Issues

4.6.1 Ethical Considerations

The issue of ethics is a major consideration, especially with an interview method of data collection. In this regard, participants should not be hurt, either through breach of confidentiality and/or anonymity by the research (Gray, 2004).

The research was undertaken in an organisational context, however, the views expressed by interviewees and participants of the online survey were in many cases personal perceptions. It was thus required that appropriate ethical approval to conduct the human research, be gained through the University Ethics Committee. In parallel, individual government agencies were contacted early enough to seek their support and approval. It was clearly emphasised in gaining the consent of participants that the data collected would be used only for academic purposes and that all interviewees’ responses would

be treated with utmost confidentiality. They were further assured that their responses will be aggregated.

4.7 Chapter summary

This chapter sets out the design and methods adopted for this research. It offers justification for the adoption of both qualitative and quantitative methods of theory and data triangulations. Research questions arising from the background chapters form the basis for the research strategy. A case study approach is used to determine the level of inter-agency integration. This offered unique and complete strategies to determine integration among land agencies. The combinations of different analytical techniques and approaches are considered to meet research objectives and to fulfil requirements of design and/or engineering research. This involved the use of structure interviews and an on-line survey across land administration functions and between different levels of governments.

The next chapters use the approach and strategies developed in this chapter to progress the development of LAIFH. This starts with the development of IIAF in the next chapter. This in turn offers a valuable tool for the determination of level of land administration integration as discussed in Chapter 6 and provided enough grounds for the development of integration framework (Chapter 7).

Chapter 5

Inter-agency integration assessment framework

“

If you understand the patterns of interaction, you can leverage this ... to improve the flow of knowledge and information [and decisions]

”

Patti Anklam, 2003⁹

⁹ <http://www.byeday.net/ona/documents/KM%20and%20the%20social%20network.pdf>

5.1 Introduction

The inter-agency integration assessment framework provides a platform to assess the interaction of land administration processes and the collaboration of agencies in the management of land for housing production. Chapter 4 discussed research design and strategies to effectively progress the development and application of the inter-agency integration assessment.

This chapter focuses on the development of inter-agency integration assessment framework following the procedure described in Chapter 4. This involves the: identification and description of broad integration aspects; identification and classification of significant parameters; and the corresponding description of measurement variables. The combinations of the *aspects*, *parameters* and *measurement variables* were developed into an integration assessment matrix.

Section 5.1 presents an overview of the development of the inter-agency integration framework. The parameters for the framework are identified and discussed in section 5.2. The following section presents a summary of the integration assessment through the aggregation of themes from the synthesis of different approaches. This provides a broader structure for the inter-agency integration assessment. The *parameters* and the corresponding *measurement variables* for assessing level of integration are later, classified and described. The concluding sections focuses on the refinement of parameters, which later resulted in the integration assessment matrix.

5.2 Inter-agency Integration assessment framework: overview

The inter-agency integration assessment framework is conceived as a tool to assess the level of inter-agency integration functions and collaboration of resources. The delivery of land for housing production provides context. The conceptual framework for linking land administration with housing production provides the structure. The assessment framework is a synthesis of different themes through: desktop research, literature searches (Arnstein, 1969; Blair et al., 2003; Bryson et al., 2006; Darlington and Feeney, 2008; Drabble, 2007; Glasby, 2008; Keast et al., 2004; Masum, 2011; McDougall, 2006; Rajabifard, 2006a) and empirical analyses. Table 5.1 puts together a summary of the common themes that emerged through these processes including the corresponding sources.

Table 5.1 Land Administration integration parameters: aggregation of themes

Integration aspects	Integration assessment Parameters	Sources
Land management Policy	Economic considerations	Bryson et al. (2006)
	Environmental considerations	Blair et al (2003)
	Social considerations	McGuirk (2008)
Institutional Processes	Communication between agencies	Darlington and Feeney (2008); Drabble (2007); Spath et al. (2008)
	Public participation	Arnstein (1969)
	Organizational structure	Bryson et al. (2006); Bolland and Wilson (1994);
	Commitments and responsibility	Agranoff and McGuire (2003)
	Resources of the agencies	Keast et al. (2003), Participants interviewed
	Dispute resolutions	Bryson et al. (2006); Participants interviewed
	Capacity building	Rajabifard (2006); Masum (2011)
Data infrastructures	Data creation: collection format	Dasgupta (2010); Participants interviewed
	Data coordination and information flow	Williamson et al. (2010); Participants interviewed
	Storage and Maintenance of data	Participants interviewed
	Technology and technical issues	Williamson et al. (2010); Participants interviewed
	Data services funding/pricing model	Richard and Tsiopoulos (1996); Participants interviewed
	Spatial datasets dissemination and use	Onsrud and Rushton (1995), Participants interviewed

The following section brings together the assessment parameters, by first identifying and discussing the parameters. The parameters are further developed into the integration assessment framework and matrix.

5.3 Identification of parameters

The first stage to progress the development of inter-agency integration assessment framework is to identify possible parameters necessary for appropriate analysis. This is intended to accomplish the third research objective. To assist in doing this, three aspects of integration are first identified. The three aspects align with the land management paradigm as discussed in chapter 2. These three aspects are: data infrastructure, land management policy, and the land administration processes. The three aspects are further classified into sixteen parameters.

5.3.1 Land management policy

As shown in Table 5.1, the first aspect of inter-agency integration assessment is land

management policy. The management of land as a resource is considered very important and challenging. More challenging is the capacity to develop appropriate land policies. Most often, national land policies are set within the context of global agendas: *sustainable development*, *Millennium Development Goal* and *climate change*. In other words, the global agendas drive the national policy direction. Land policies usually articulate current and future relationships between land and people and how they are managed (Bennett et al., 2005). This is, however, mediated by evidence through data infrastructures, as well as principles and politics as designed by policy makers (Innis, 2012).

The primary goal of formulating land policies, at least from the contemporary point of view, is to achieve sustainable development (Elkington, 1997; UN-HABITAT, 2003). The concept of sustainability has been a highly disputed and controversial one. However, through existing debates in the literature, three themes clearly emerged which are popularly referred to as the ‘triple-bottom line’ sustainability objectives. These objectives attempt to achieve development that promotes economic growth, but maintains social inclusion and minimises environmental impact (Dixon, 2007). These three objectives correspond to, and underpin the three parameters for assessing land management policy issues. Although today, the emphasis has shifted from the sustainability discourse, to climate change (another alternative for creating awareness of the principles of sustainability). In this regard, the principles of sustainability development significantly underline the current assessment and analysis.

The major concern is how these objectives could be integrated across functions within the context of land management for housing production. Most importantly, these raise some fundamental questions: what are the major issues among these three themes that have the potential to promote or impede collaboration among agencies? How could these be evaluated or measured?

The Inter-agency Integration Assessment Framework attempted answers to some of these by developing indicators to determine good practice in land governance. Indicators (LGI) 5, 6, 7 are developed by World Bank (2010) to benchmark the quality of land governance. Some aspects of these indicators provide context for developing inter-agency integration assessment. The inter-agency assessment framework as intended here, however, expands the scope of *land governance* dimensions and

specifically set parameters regarding how these indicators or dimensions could be measured.

These parameters are:

- i). economic policy consideration
- ii). environmental policy consideration
- iii). social policy consideration.

i). Economic policy consideration

Most often, policies are anchored on economic benefit derivable from economic activities that is accruable to the government. Thus, there is the tendency by government to place emphasis on this at the expense of balancing this against economic sustainability. NSW (2010) describes economic sustainability as:

- fostering diversity, growth, development and creative opportunities for business and industry
- providing increasing and innovative employment and education opportunities for existing and future residents
- managing population size and density such that it is sufficient to sustain and extend services in key centres.

To achieve these will involve, among others, the effective and efficient land use planning that is focused on spatial inter-relationship of job location and residential location. To put it differently, it involves striking an effective balance through considerations of issues that are integrally linked to and often in the critical path of, the supply of land and housing relative to where job are located. The key questions are:

- How can we best foster opportunities for business and industries that serve our communities?
- How can we make efficient use of existing and future infrastructure that support housing production?
- How can we improve employment and educational opportunities for our residents in a sustainable way?

In considering these questions, it is important to think about how decisions on land use interventions that impact businesses and housing production are taken. This is against the background that economic cost of housing is an important issue for a broad range of stakeholders including bankers, developers, governments and the public. In most

national jurisdictions, overall development costs are influenced by lot sizes, infrastructure cost, development approval costs and building costs. These consequently impact housing affordability and liveability (Commonwealth of Australia, 2011).

A careful consideration of the proliferation and management of land interests within the context of economic policies and theories is thus important (Blair et al., 2003). It is therefore logical to posit that any framework attempting to manage economic interests holistically must take the collaboration of agencies and policies, as well as, all the accompanying issues into consideration in both developed and developing countries. The Millennium Development Goals (MDGs) provides a good platform to articulate the economic needs of people especially in the area of security of tenure in the developing countries. Against this background, it will be important to know integration strategies for economic consideration. For example, Is economic consideration shared only through publications? Is there willingness to align economic considerations between agencies? Are economic considerations constantly being tested and modified across processes? Is there a timely dense inter-dependence with local business and the wider community regarding economic policies? Are there statutory arrangements for incorporation among agencies? Providing answers to these and attempting to strike a balance with other sustainability objectives are important.

ii). *Environmental policy consideration*

As observed by Blair et al. (2004), most environmental policy has its development in the international agenda and treaties. It is then disseminated through different hierarchies of government: federal level to state and local government for implementation. Most often, environmental sustainability policies that address housing and urban development are generally not specific. In most literature, it is presented as a generic issue. Blair *et al* (2004), however, aggregated the main areas of environmental policy development relevant to residential development include the following:

- Sustainability and Urban Design
- Protection of Flora, Fauna, Biodiversity
- Control the consumption and production of ozone depleting substances
- Water Quality Management
- Storm Water Management
- Water Supply Management
- Waste Management.

In Australia, several agencies are established to deal with the issues of sustainability in housing and urban development. As an example, Model Code on Residential Development (AMCORD) suggests ways of implementing sustainability in the areas of urban form, density, transport, site planning and solar access, building design, storm water and integrated catchments management, for social and environmental benefit (Blair et al., 2004).

The main challenge is that most environmental policies cut across several government departments and agencies. Consequently, developing and implementing policies that have impacts on them are usually split between many agencies within and across many jurisdictions (Bennett, 2007; Ting, 2002). It is then logical to posit that collaboration between these agencies is imperative for efficient and effective performance. It thus qualified as one of the parameters to assess inter-agency collaboration.

iii). Social policy consideration

Social policy considerations, like environmental and economic policies, are driven by, and respond to current global: economic, demographic and social transformations. Most global cities exhibit development trends and social tendencies indicative of social stratification reflecting some level of strained social cohesion (McGuirk, 2008).

The adoption of '*competitive city*' governance paradigm is changing governance context in most of these cities. As it stands now, neo-liberal tenets tend to erode national commitment to social provision. This is manifested in marked reduction in the provision of public and social housing in most jurisdictions. The situation reflects key aspects of urban socio-spatial transformation that aimed less at securing welfare outcomes than at securing a competitive '*quality of life*' (McGuirk, 2008).

There is a need for national urban policy agenda that move beyond the limits of the '*competitive city*' governance paradigm to mobilise the resilient capacities of state intervention. To accomplish this, it will require a re-focused and deliberate effort to provide for the less privileged and vulnerable groups within the society, such that Land policy is developed in a participatory manner. This is to be structured within a comprehensive policy and made consistent across functions and agencies while using a 'whole of government' approach for formulation and implementation. In this regard, a better understanding of the level of integration among stakeholders: the government

(federal, state and local), businesses and individuals will involve aggregation of different perspectives.

This proposition is premised on the findings of Grattan Institute research through samples of global successful cities (Kelly, 2010:10). The success stories as the study revealed were essentially based on a number of common themes:

‘there were high and sustained levels of public engagement in decision making; there was a consistent strategic direction, as well as collaboration – between levels of government, the business community, and civic organisations’.

Finally, there was usually a trigger for improvement, which galvanised the political will required for real, sustained improvement. Overall, it is logical to argue that the sustainability objectives should be given appropriate attentions when the issues of inter-agency integration as considered.

5.3.2 Land administration process

The second aspect of inter-agency integration is the land administration process. Processes are the means of operationising the policy objectives of organisations within the frame of governments’ policies that established them. It is difficult to conceive of a solution to addressing global issues, which most often, underpin the national, regional and local issues without some sort of inter-agency understanding, agreement or collaboration. Integration of processes among agencies becomes imperative to progressing this. However, in reality, there are varying degrees of willingness to collaborate.

Responding effectively to the demands of collaboration has been a major challenge. The level of response is usually considered as a perception of the need to collaborate. On the one hand, Hudson et al. (1999) and Roberts (2001) opined that organisations will be willing to collaborate and integrate their processes when they cannot get what they want without collaborating. In other words, when the actual or the potential failures cannot be fixed by the organisation acting alone, in what is referred to as *sector failure* (Bryson et al., 2006). On the other hand, is to assume that collaboration is the best option to maximise resource utilisation.

Here, discussions centre on relevant dimensions, concepts and outcomes of combined perspectives from existing knowledge through literature and the initial research

findings. The parameters as discussed emphasises attempts to capture the extent of interaction among or within organisation in a non-linear style.

The following parameters of inter-agency processes were isolated for the inclusion in the inter-agency integration assessment framework:

- communication between agencies
- public participation
- organisational structure
- commitments and responsibility
- resources of the agencies
- capacity building
- dispute resolutions.

Each of these is now discussed in turn.

i). Communication between agencies

One of the most consistent findings in the literature to improve understanding of effective inter-agency collaboration, in the context of land delivery for housing, is the importance of communication. This is particularly more useful in building relationships (Bryson et al., 2006; Darlington and Feeney, 2008; Drabble, 2007; Solesbury, 2002; Spath et al., 2008). This is also found to be consistent with the insights found in the structured interviews.

More often than not, inter-agency collaborations are more likely to succeed when they have committed sponsors and effective leaders who can facilitate effective communication and provide formal and informal leadership. The development of fundamental datasets, especially cadastral data has often been found to stimulate communication among agencies. Improved communication has the potential to improve legitimacy and enables the development of trusts among agencies (Bryson et al, 2006).

There are several strategies to foster and promote communication among agencies (Figure 5.1). The details exploring this, is beyond the present analysis. However, the parameters as illustrated in Figure 5.1 provide background structure as to how communication could be facilitated.



Figure 5.1 – Strategies to foster and promote communication among agencies
 Source: http://stevecartledge.com/comm_strat.html

The illustrated parameters are, however, reconfigured to align with the measurement variables as later presented in Table 5.2. It is thus assumed that better communications will promote better participation.

ii). *Public participation*

It was acknowledged through existing literature that the issue of public participation is important in structuring and implementing strategic land use planning. Public participation is equally important in determining the development and use right through to the statutory planning activities. These go a long way in determining how land is made available for housing production. The ability to get this right is an essential component of ascertaining liveability, sustainability and productivities. It is recognised here that decisions are made based on multi-faceted relationships between the different actors having different priorities. The reconciliation of these competing priorities is at the centre of the concept of governance (World Bank, 2010). Most of the time, there is tension and conflict because of inappropriate strategies or inadequate public involvement in major decisions that affect the people. The corollary of this is that to minimise conflict, it is imperative to involve the people that are eventually impacted by government decisions.

Arnstein (1969) developed eight levels of public participation. This is popularly referred to as the *ladder of citizen participation*, which is a useful theory to describe the level of public participation and clearly shows the difference between actual optimal participation. Most often, what is flagged as participation are not more than a charade to

masquerade participation. The different levels of participation are outlined below and these correspond to the measurement variables as used in this research. This is to determine present level of collaboration between organisations and the public.

The level of participation is composed of 8 rungs, with each one corresponding to the extent of citizens' power in determining choices that are made by government (Figure 5.2).

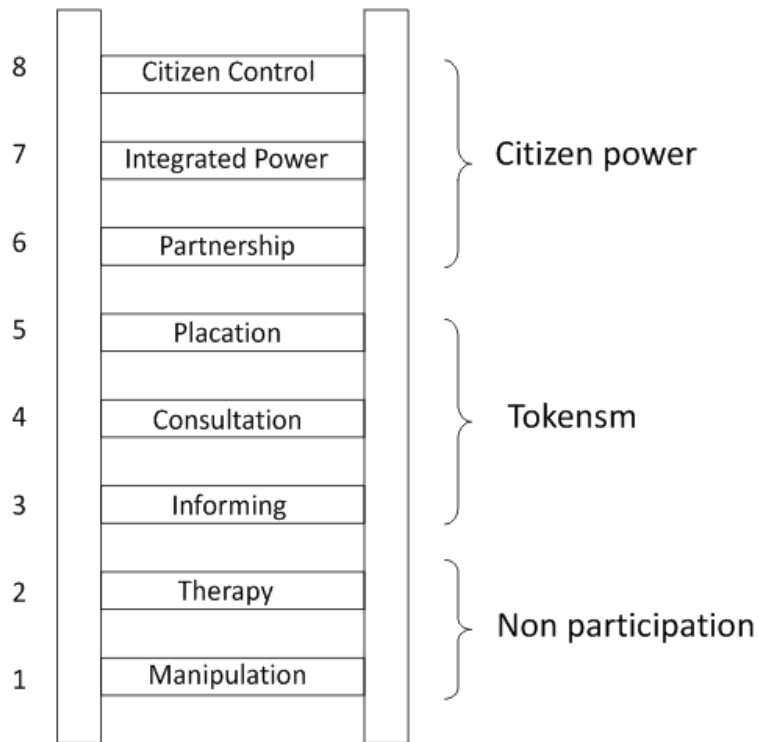


Figure 5.2 – A Ladder of Citizen Participation

Source: Arnstein (1969)

iii). *Organisational structure*

Organisational structure could take different forms or configuration. It is usually influenced by the size, nature and composition of agencies (Bryson et al., 2006; Human and Provan, 1997). Stone (2004) observes that changes in government policy have the capacity to alter government policy direction and potentially alter the structure and ties among agencies especially the collaborating members. In some cases, structures could be dynamic, by responding to the ambiguity and complexity associated with the composition of collaborative arrangement (Huxham and Vangen, 2005). As observed by Bryson et al. (2006) ambiguity arises from the perceptions of participation levels of members. Issues of who belong to the collaboration and whether they actually represent

themselves, their organisations, or a particular identity group then become relevant.

Following from this, Bryson et al. (2006) offers two researchable propositions:

- Collaborative structure is influenced by environmental factors such as system stability and the collaboration's strategic purpose.
- Collaborative structure is likely to change over time because of ambiguity of membership.

The desire to determine the level of ambiguity and how it impacts collaboration, within the institutional structure, is therefore an important consideration for this assessment framework. Organisational structure is thus assessed as either standalone, centralised or distributed. It is also assessed based on the focus of the organisation in terms of product and functional expertise as well as commitments and responsibilities.

iv). Commitments and responsibilities

One of the on-going urban governance challenges is to find ways of engaging diverse agencies in a way that are open to high levels of commitment and responsibility. This is important to be able to negotiate differences of value, identity, priorities and needs across communities and localities, especially with regards to the delivery of developable land for housing. Collaborations provide multiple roles for formal and informal leaders as well as members of the collaborating agencies (Agranoff and McGuire, 2003; Crosby and Bryson, 2005). However, for collaboration to be effective, participants need formal and informal authority, vision, long-term commitment, integrity, relational and political skills. Most importantly, commitments and responsibilities are considered as willingness to collaborate within and across agencies.

In this regard, it could be argued that the willingness of staff of participating agencies to progress the objectives of collaboration is a function of many factors: commitments of the leaderships; rules of engagement; and the interdependence of agency goals. It is therefore important to carefully articulate mission, goals and objectives of agencies to progress collaboration. Bryson et al. (2006:51) posit that, 'inter-sector collaborations are most likely to create public value when they are resilient and engage in regular reassessments'. In this regard it should also offer opportunity to, clearly define, process for dispute resolution.

v). *Dispute resolution*

For any relationship to succeed there must be an in-built mechanism to manage conflict. Conflict in relationship usually emerges when there are differing aims and expectations that partners bring to collaboration. This could be further compounded by differing views about strategies and tactics. There are higher tendencies for more conflict if the collaboration is formed for system change rather than to agree on how to deliver a service (Bolland and Wilson, 1994). Another major source of conflict is the power relation among the collaborating agencies. Bryson et al. (2006:48) observed that 'conflict may be exacerbated when the collaborating organisations differ in status (either because of size, funding, or reputation).

This appears to be the case between the different levels of government in the study areas:

... 'it is like master - servant relationship. Most often, the decisions of the state government are imposed on the local government ... density control, VCAT etc...' (MAV, 2010).

From these viewpoints, to prevent or resolve conflict between collaborating agencies, the issues of responsibility and power relations are important. Less powerful partners will need assurance that their interests are protected. There must also be willingness to identify potential agents of conflict and adequate structure and strategies to deal with these are put in place. All these are important when assessing level of collaboration since they have potential to promote integration of processes and collaboration of agencies.

vi). *Capacity building*

Capacity building is considered as one of the major issues for designers of land administration systems (Williamson et al, 2010). The concept has different meanings and interpretations depending on the context and the users. Capacity can be conceptualised as the ability of individuals and organisation or organisational units to perform functions effectively, efficiently and sustainably (UNDP, 1998). From the perspective of SDI, Rajabifard (2006) notes that, capacity building involves: developing the capacity of society, institutions and individuals (Figure 5.3).

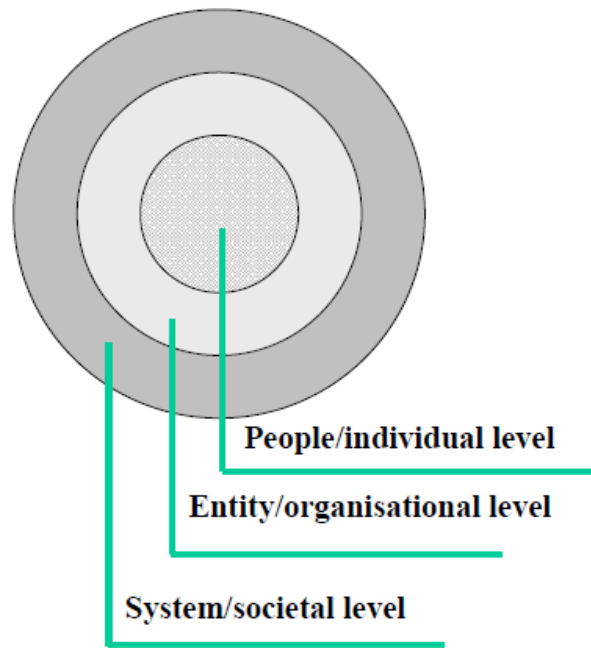


Figure 5.3 – Three levels of capacity building
Source: Rajabifard (2006a)

Within the context of land administration, Honadle (1986) as quoted by Masum (2011), describes capacity as the:

‘ability to influence and foresee change, exercise informed decision-making concerning policy, implement policy decision through program development, wisely obtain and manage resources, and conduct meaningful evaluation as a guide to future behaviours.’

Following from this, Masum (2011) offers broader insights and notes that capacity could be conceived as having three dimensions:

- Resource-based capacity: human resource, funding, technology and infrastructure
- Administrative capacity: ability to apply land administration policies and legislations in an efficient and effective way, as well as to support the competent decision-making process
- Managerial capacity: ability to perform the functions with effective managerial process and proper coordination with other organisations.

With regard to capacity assessment, it could be focused at any level. However, the third dimension (managerial capacity) is closely aligned with the capacity parameter as conceived here for the analysis of inter-agency collaboration. The resource-based capacity is included in the parameter to measure the sharing of resources among

agencies. The administrative capacity is considered in the development of land management policy parameters.

As noted by one of the interviewees in Lagos:

... 'there are too many non-professional staff working in Lands bureau, they constitute a lot of bottlenecks in service delivery'.

It could be inferred from this statement that one of the keys to successful inter-agency collaboration is capacity building. One of the basic requirements is the effective knowledge transfer. For knowledge to be effectively transferred it should not be a '*one off*' event, rather it should be a continuous process in which knowledge accumulates and influences thinking over time (Walt, 1994). There is a lot of scope for both developed and developing countries in this regard. Practical experiences have shown that institutional capacity and strong land administration systems go hand in hand (Masum, 2011).

vii). *Resources of the agencies*

Agencies' resources could vary widely. One could argue that the resources of an organisation could be measured by its ability to perform efficiently and effectively. Within this premise, it is considered a wise strategy when collaborating agencies use their resources to put all participants on equal footings. In this regard, it is imperative to educate participating agencies about concepts, information and tools that are key to working collaboratively (Keast et al., 2004).

Key aspects dominating collaborative decision-making include (Keast et al, 2004):

- Prioritisation of and a desire to protect resources for agencies' and departments' own client groups.
- The greater ability of the most powerful actors to gain the cooperation of other bodies in order to advance their own organisational agendas.
- The adoption of coordination mechanisms to reduce risk and maintain organisational survival.

It is important therefore to consider willingness to share resources among collaborating agencies. Any feeling of one agency taking advantage of the other might jeopardise collaboration considerations. To prevent this happening, there must be rules of engagement guiding resource sharing.

5.3.3 Data infrastructures

The third aspect is data infrastructures. Depending on what types of data exist, data infrastructures enable data and information to be converted to knowledge through interaction. This then provides a sufficient base for the formulation of appropriate policies for the future. The modelling and visualisation capability of spatial data provide means of testing alternatives and turning data into information, and subsequently into knowledge and wisdom (NRC, 2003).

It is important to situate this within a context of application. Therefore, to gain an improved understanding of how data and information can contribute to effective decisions, it is framed within the jurisdictional context. This underscores a need for interaction between jurisdictions especially between different levels of government within a national jurisdiction.

The context influences the type of data that is collected and consequently how these could be organised into information. The consumption of information, based on the experience of the consumers, determines how information develops into knowledge. All of these are underpinned by the context within which information is interpreted and used. The technology and policies for collection, storage, dissemination, sharing and use of data is thus closely aligned with the institutional processes and vice versa.

It is acknowledged that the objectives of data infrastructures are varied. For example, most SDIs focus on facilitating access to the use and sharing of spatial data. While these are valid objectives, the focus here goes beyond these to include a more broad perspective of SDIs that recognise: improvement in business processes, policy-making and service provision. This perspective aligns with the network viewpoint of Vandenbrouke et al. (2009). In this regard, integrating data services here is structured within the whole of government approach to spatially enable land delivery for housing production.

It is thus conceived that successful outcomes depend on: power-sharing, thinking outside the narrow views to include strategies to solve practical problems of information management and infrastructure. It also includes stakeholder relationships. To work more successfully across national government agencies, states and territories, and the private sector requires better information sharing. This is in parallel with structured

approaches to improving business processes, policy-making and service provision.

In this expanded view, the management of data infrastructure involves the integration of the following parameters:

- data creation: collection format
- data coordination and information flow
- storage and maintenance of data
- technology and technical issues
- data services funding/pricing model
- spatial datasets dissemination and use.

It was noted that these parameters are classified into technical and non-technical integration (Williamson et al., 2010:234). It was further noted that successful data integration, using an SDI platform, requires interoperability across these variety of fronts (Mohammadi et al., 2006). By acknowledging these, the following sections discuss the requirements for integration among stakeholders to support the creation of an efficient infrastructure for data and information management.

i). Data creation: collection format

The first parameter is data creation. Data is created in several formats. Different organisations also collect data for different purposes. Most often there are commonalities in the types of data being collected, which usually result to overlaps. It is therefore imperative to bring data together to prevent duplication. However, some of the major challenges are: data format consistencies, data quality, availability and quality of metadata necessary for data discovery. All of these contribute significantly to the interoperability of data.

Important questions to ask in facilitating inter-agency interaction thus include: Are specialised data formats usable only internally within agency? How is data collected within and among agencies? In what format is the data collected which will allow sharing among agencies? What are the issues around geo-referencing of data to make it seamlessly interactive, rich and regularly updated? Is it possible or necessary to target making data collection across agencies and processes real time?

As noted by Dasgupta (2010):

‘...acquisition of data presents a very interesting picture. At one extreme, we have the government survey relating to land records and

titles... At the other extreme, we have a new brand of geographers, neo-geographers, who, armed with GPS, are able to provide geospatial data much faster than any organised effort... volunteered information has become a vital component of geospatial data. There are no policies regulating or standardising such information’.

Within the frame of varied types, formats and sources, the questions raised above are thus important, especially when there are many dimensions of data collection to be considered.

Most often there are specific rules guiding information flow within an organisation and between organisations. This is reflected in the way data management is coordinated and how data is discovered (Williamson et al., 2010).

Essentially, linkages among data management units are important. To assess the level of inter-agency integration, it will be important to consider whether information flow is restricted within individual agency. It is also important to determine data awareness strategies in place. Regarding this, it is essential to know if information is published in a medium that could be shared or whether specifically required information is shared between agencies. Other considerations are: linkages among data management units, and the issues of rules guiding privacy and copyright. It will equally be important to know if there are interactive data management strategies to overcome legal issues and then determine if there is a dense network of information flow across functions and agencies.

ii). Storage and maintenance of data

The storage and maintenance of data are important in the consideration of data management. One of the major issues that are closely linked with data sharing is the capacity of agencies for data storage. Also important is the issue of cost and of the maintenance of such data. For effective integration among agencies, these issues must be worked through appropriately. Most importantly, as we move away from a single data generator and supplier situation to multiple data suppliers; concerns are raised on a regular basis regarding the issues of liabilities. This becomes even more complex when the issue of privacy and protection of individual rights are considered.

There have been many proposals, especially by national governments to have national data base, but arguably the custodianship of data is not well articulated. Here the

concern is what should be the appropriate model for data storage and maintenance. Should data be stored and maintained internally within an agency? Should there be independently shared responsibilities for data storage? Should consultation among agencies, to ensure good quality, be more appropriate? Should coordination between processes to ensure accuracy and currency be more focused? What should be more important: eliminating non-optimal duplication or value added in a collective way to make it reusable? Should information be stored by coordinates to make it spatially enabled?

The priority of land agencies should be assessed along these major issues in a way to promote better efficiency especially with the use of technology.

iii). *Technology and technical issues*

In the context of housing production, the development of land administration can, and should, benefit from improvements in technology. However, technology should not entirely be viewed as the use of computers. As posited by Williamson et al. (2010:225) 'it is about the way institutions work and operate'. It is acknowledged that there are many technical obstacles. For example, spatial data may differ 'semantically, syntactically and structurally' (Dasgupta, 2010). This might create significant problems in sharing and using spatial data among organisations. For consistencies therefore institutions' activities should be standardised to develop a platform to bring together heterogeneous systems. This is important to ensure interoperability.

As put by one of the interviewed participants in Melbourne:

‘...there is a general tendency to focus on standardising a product to satisfy immediate need of an organisation. In my opinion, this is a short term approach and limited in scope and capacity. Standardisation in an ideal situation should focus on achieving a significant reduction in data duplication...’

Reflecting on these viewpoints, it is important to consider how available technology is customised for internal and external use. This raises some fundamental questions: are organisations open to external developments? Are there enough consultations between agencies to identify common application? Are the processes between agencies well-coordinated to identify common applications? Are there agreements on access networks and standards? Are organisations working toward a cross-jurisdictional compatible application network? Providing answers to these questions will assist in the assessment

of inter-agency integration; it will equally assist in developing funding and pricing models for data sharing.

iv). Data services funding/pricing model

One of the major concerns of SDI development is the issue of pricing, especially when there is consideration for cost recovery. There are different views among jurisdictions regarding the controversial concept of defining data as public or private goods. Richard and Tsiopoulos (1996) identified six distinct characteristics that are relevant in placing products along the public–private goods spectrum: ‘rivalness; excludability; economies of scale; lumpiness and sunkness of costs; externalities; and social and political objectives’. The benefits associated with either view (public or private goods) are generally contestable.

Often, data collected by government agencies in the conduct of their mandate is charged out to data users. Some observers have argued this is not fair. However considering the insights offered by a government employee (interviewed respondent) in one of the State’s departments:

‘...at the department level, applying cost recovery is driven by the mandate of the agency and the purpose of its data collection. In our case, payment for any of our products is remitted to government and kept as part of consolidated revenue for the state. Part of this is later made available to us for continuous update and maintenance of the products.’

As could be inferred from the above statements, it is almost certain that cost recovery will remain a major drive for setting a pricing model for some time.

Most government agencies are cut in a fix of implementing key cost recovery practices. This is against the background of a majority of users not willing or unable to pay for such datasets. In other cases the underlying problems is deciding which activities to charge for and how to set the fee. This situation is particularly different when the primary purpose of setting some organisations is to make profit. Consider the view of an interviewed respondent in Melbourne:

‘...as a value adder organisation, we derive our revenue by charging the users. You should be aware that we spend considerable time, energy and resources to clean the data before it is made available to end users for meaningful analysis...I can confirm to you that 65% of our workforce is dedicated to data cleaning...there [is] no other better way but to charge...’

Keeping all other factors impeding efficient development of SDI constant, the challenges are: How important is the cost borne by individual agency in setting data services funding/pricing model? Are there other strategies for sharing the cost among agencies? Is this cost sharing strategy informal or structured? Is the cost shared, targeted between processes? Are these guided by specific rules? Are they based on any form of sequencing of financing mechanisms? Or at the extreme, should dataset usage be considered as a public good (free of charge)? These are important considerations to facilitate collaboration between agencies in a way to encourage efficient and effective dissemination and use of data.

v). Spatial datasets dissemination and use

Spatial datasets dissemination and use is crucial to achieve sustainable development. It is expected that cadastre data component is integrated to realise the full multi-purpose benefits of land administration. SDIs are essentially developed to ease access to spatial data for a wide range of users. One of the major concerns of many observers is the outright lack of willingness of publicly funded organisations to cooperate to share resources or information (Onsrud and Rushton, 1995a). This lack of willingness is generally considered to result in a waste of resources because of the attendant duplications. This phenomenon stems from the fact that in reality individual public sector agencies find it easier to work within their sphere of influence than outside of it (McDougall, 2006). What this effectively means is that beyond the issue of cost recovery, there could be some underlying issues with working together. One of the respondents notes:

...‘we are different departments with different motive[s] and purposes. I believe we have different functions that is why we are set up as different departments in the first place.... Yeah, agreed, we have some areas of similarities but apparently we have targets that forms the bases for the assessment of performance...a better department gets better recognition and supports...’

From the above statement, it could clearly be inferred that some departments see other department as rivals. They are thus configured to compete with one another thereby negating the benefits of data sharing. However, another respondent offers different views:

...‘one of the most important of all resources is the human resource needed to effectively organise and utilise geospatial data and applications. Most often, administrative ... policy and legal issues might

stand in the way of achieving this, but to effectively overcome these [issues] a holistic framework is required...’

This view is shared by most of the respondents. What this suggests is that it is important to work together across agencies. It is therefore necessary to assess the level of willingness of agencies to share data as a way of determining inter-agency integration. In this regard: Is information only available internally in silos (not shared)? Is information only shared minimally among institutions? Are dataset dissemination projects specific such that information is only shared among project partners? Are there peculiar strategies for information sharing based on time requirements, in which case, data would be shared across organisations in real time? Are there motivations to nationally web enable real-time dataset sharing?

5.4 Validation of the assessment parameters

Before the inter-agency assessment parameters and the corresponding measurement variables could be effectively used as a tool for inter-agency assessment, it is important that they are assessed for appropriateness. This involves running the assessment tool through selected government departments and agencies. During this testing, the measurement variables were checked for consistencies. In this regard, the structure and wording were examined closely. Suggestions were offered to make some modifications to those not measuring appropriately and what they are meant to measure as interpreted by the reviewers.

After various comments and feedbacks were considered, the strategy to determine the level of interdependence of agencies was included. It was suggested by the reviewers that a section should be included through which organisations were asked to indicate, among the identified agencies, a particular agency that has the most significant role in land administration for housing and urban development that impact most on their activities. After a careful consideration of the reviewers’ comments the inter-agency assessment matrix was developed.

5.5 Development of inter-agency assessment matrix

The description of the integration parameters as presented in the preceding sections offers a good platform for exploring integration of processes and collaboration among agencies. This section focuses on how these parameters could be used to gain improved understanding of inter-agency collaboration in a two-dimensional matrix.

The development of this two-dimensional matrix evolves from a number of earlier studies in conjunction with the processes for the development of the assessment parameters. A number of commentators have proposed a series of frameworks and key definitions to advance the call for inter-agency interaction beyond the concept of partnership, cooperation or coordination. The present study draws on approaches developed by Brown and Keast (2003), McDougall (2006), Keast et al. (2007), and Glasby (2008).

The discussions start with the concept that joint working approaches should derive from a systematic identification of the *context*, *mechanisms (process)* and *outcomes* (Figure 5.4).



Figure 5.4 Focusing on outcomes

Source: Glasby et al. (2008)

This concept is common in theory-led research approaches such as realistic evaluation and theories of change (Connell and Kubisch, 1998; Dickinson, 2008). The major limitations being that its assumptions and application only deal with linear interactions. Building on this model, Glasby and Dickinson (2008) argue that public services and policy makers need to be much clearer with themselves and with key stakeholders about the best mechanisms to progress their goals.

Following from this, Brown and Keast (Brown and Keast, 2003)(2003) and Keast et al. (2006) propose the ‘3 Cs’ – which postulates that horizontal integration sits on a continuum. This ranges from highly fragmented to a fully integrated service and delivery system. An important aspect of this is that three main integration goals (cooperation, coordination and collaboration) are differentiated. These are calibrated along the level of relationship connection and the types of outcomes to be achieved (see Figure 5.5).

This is consistent with McDougall (2004) development of four basic classifications to determine the level of collaboration among land agencies. These are: rules, resources, power relation and the overall goal. These classifications are incorporated in the

expanded view of collaboration continuum as developed in the present research with regard to the matrix for inter-agency integration assessment framework.

The present effort to assess inter-agency integration is structured within the collaboration continuum (Figure 5.5) as developed by McDougall (2004).

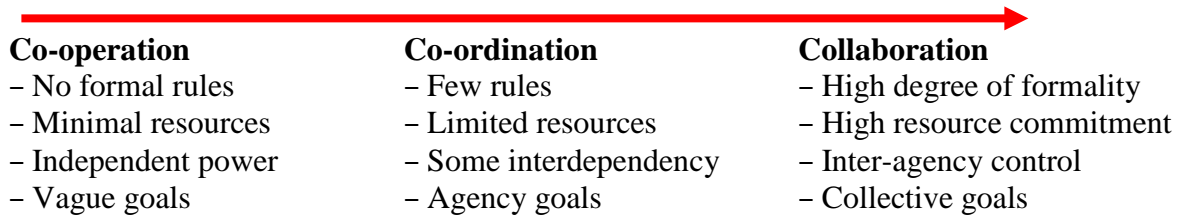


Figure 5.5 Understanding collaboration continuum

Source: McDougall (2004)

Progressing this further, Glasby (2008) proposed a depth and breadth matrix (Figure 5.6). The matrix seeks to explore and identify the level of relationships different partners might need with each other in order to achieve particular aims. The framework allows clear identification of the array (vertical and horizontal) of actors to be included in the joint effort.

This proposition was adapted to, conceptually, develop the land administrative integration assessment matrix (Figure 5.6).

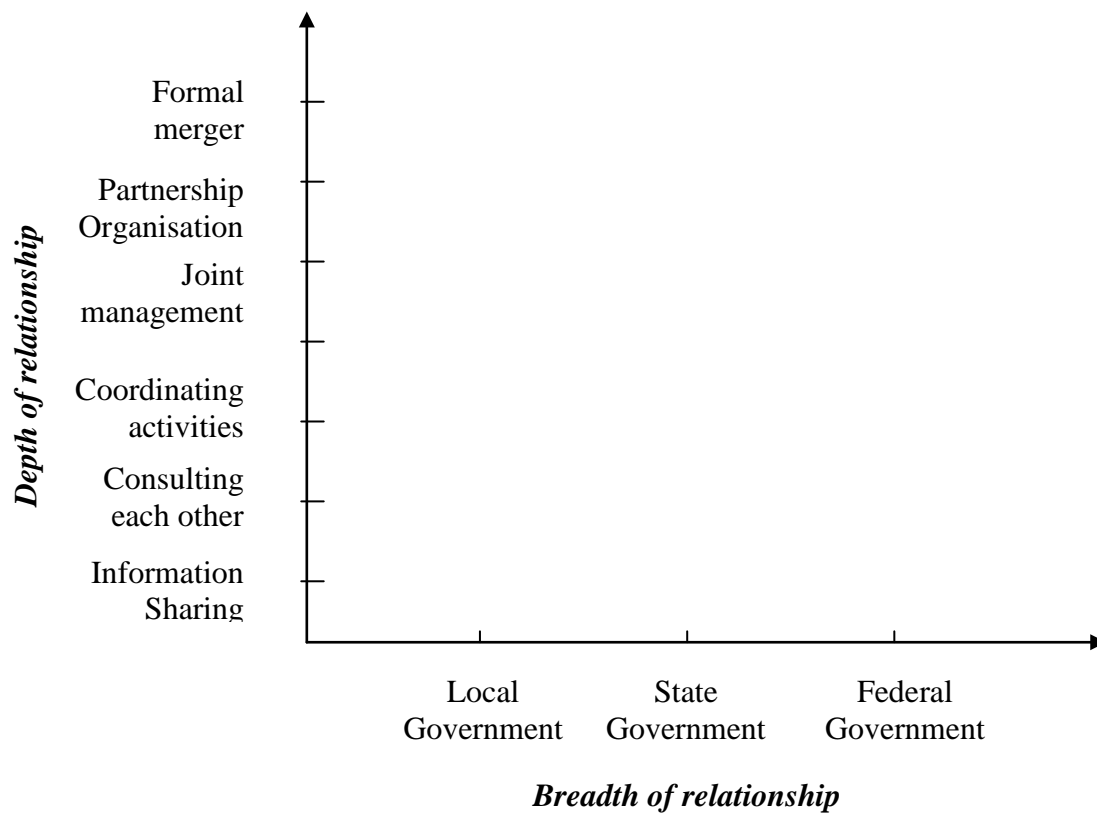


Figure 5.6 Depth versus breadth of relationship

Source: Adapted from Glasby (2008)

One approach of transforming this to integration assessment is to identify nodes of interactions between agencies and across functions. In this regard it involves developing a scale of measurement to assess the level of interdependence of interactions through the identified inter-agency nodes. It is considered that this approach offers a better strategy to effectively assess the level of inter-agency interactions. The appropriateness of this approach is discussed in Chapters 6 and 7.

5.5.1 Adopting calibrated scale of measurement

The level of integration is measured on a scale of 0 to 6

Where:

- 0 = No known Integration
- 1 = Sharing information
- 2 = Consulting each other
- 3 = Coordinating activities
- 4 = Joint management
- 5 = Partnership organisation
- 6 = Formal merger

This is calibrated from lower to higher level of integration to develop a collaboration continuum following from the earlier works of Brown and Keast (2003), Glasby (2008), Glasby and Dickinson (2008), McDougall (2004), and Keast et al. (2007).

The measurement variables scale starts with: sharing information, consulting each other, coordinating activities, joint management, partnership organisation, and formal merger. These are used to consider and compare the depth of integration across land administration functions and breadth of integration between levels of government. This provided framework to structure the online survey responses in a way to align with the scalable measurement variables.

The scale as used above is developed as an amalgam of Likert Scale (Summated scale) (Madsen, 1989; Schertzer and Kerman, 1985), Guttman Scales (Cumulative Scales) (Guttman, 1944; Guttman, 1950; Narens and Duncan Luce, 1986), and Semantic Differential Scaling (Osgood et al., 1957). This is designed to optimise advantages of each, while at the same time avoiding the disadvantages.

Designing a scale with a balance of the advantages for each of the scales can obviate the identified associated problems. In this regard, elements of each are combined to measure the level of inter-agency interactions. This is developed as *integration assessment matrix* combining the integration parameters and measurement variable items (Table 5.2).

To allow for objective assessment of inter-agency integration, the tool as contained in Table 5.2 is subsequently structured into questionnaire format. The questionnaire has two dimensions: to measure the relationships between organisations regarding the present levels of integration while at the same time assessing the level desired among the agencies (Appendix V – Questionnaire).

Table 5.2 Land Administration Integration Assessment Matrix in the context of housing production

Integration aspects	Integration Parameters	Measurement Variables (to determine present level of collaboration between organisations)						
		<i>No integration</i>	<i>Cooperation</i>		<i>Coordination</i>		<i>Collaboration</i>	
		0 No known Integration	1 Independent resource sharing	2 Consulting each other	3 Coordinating activities	4 Interdependent management	5 Partnership organisation	6 Formal merger
Land management Policies	1 Economic consideration	No known integration strategies for economic consideration	Economic consideration is shared only through publications	Willingness to align economic consideration are limited between agencies	Meetings to identify economic priorities between processes	Economic consideration are constantly being tested and modified across processes	Timely dense inter-dependence with local business and the wider community	Incorporation of policy by reference through legislations (statutory)
	2 Environmental consideration	No known integration strategies for environmental consideration	Environmental consideration is shared only through publications	Detailed environment consideration in consultation with other agencies	Meetings to identify projects of significant environmental impact between processes	Undertake joint review of policies that have significant environmental impact	Partnership agreement with local business and the wider community	Incorporation of policy by reference through legislations (statutory)
	3 Social consideration (Good governance)	No known integration strategies for socio-political consideration	Existing policies between agencies can be inferred only through existing legislations	Defined social consideration exists between agencies but are not consistent	A comprehensive social policy integration exist between agencies	A comprehensive social policy consistency across functions and agencies	Social consideration is developed in a participatory manner	Whole of government approach to policy formulations and implementation

Integration aspects	Integration Parameters	Measurement Variables (to determine present level of collaboration between organisations)						
		<i>No integration</i>	<i>Cooperation</i>		<i>Coordination</i>		<i>Collaboration</i>	
		0 No known Integration	1 Independent resource sharing	2 Consulting each other	3 Coordinating activities	4 Interdependent management	5 Partnership organisation	6 Formal merger
Institutional Processes	4 Communication between agencies	No communication	Communication is focused on individual organisation	Initiatives and dialogue maintained between organisations	Structured communication flows between processes	Interdependent relationship building	Collective bargaining to facilitate better communication across agencies and processes	Open and interactive communication flows between all
	5 Organizational structure	Informal	Stand alone	Centralised	Distributed - team structure	Inter organisational network focusing on product	Cross-functional team linking functional expertise	National network structure linking function and product
	6 Resources of the agencies	Remain own not shared)	Minimal resource commitment	Informal rules guiding resource sharing	Shared resources around project	Interdependent use of resources between organisations	Strong formal rules guiding resource sharing	Pooled, collective resources
	7 Commitments and responsibility	staff not willing to interact	staff willingness to collaborate only within the organisation	staff willingness to collaborate with other organisations — no formal rules	staff willingness to collaborate with other organisations few formal rules	staff willingness to collaborate with other organisations is driven by interdependence of agency goals	staff willingness to collaborate with other organisations is based on strong formal rules of engagement	Incorporation of activities by reference (referral)
	8 Capacity building	Lack of appropriate expertise	Intra organisation exchange of skilled staff	Similar professional training, identity, or orientation between organisations	Inter organisation transfer of skilled staff	Task reallocation to more effective and efficient specialists, located in specialized organisations	Regularly allocating tasks to more effective and efficient specialists, centrally coordinated	Inter-organisation exchange of skilled staff to empower the society

Integration aspects	Integration Parameters	Measurement Variables (to determine present level of collaboration between organisations)						
		<i>No integration</i>	<i>Cooperation</i>		<i>Coordination</i>		<i>Collaboration</i>	
		0 No known Integration	1 Independent resource sharing	2 Consulting each other	3 Coordinating activities	4 Interdependent management	5 Partnership organisation	6 Formal merger
	9 Dispute resolutions	No known dispute resolution strategy	Responsibility for conflict management at different levels is clearly assigned within organisation	Responsibility for conflict management at different levels is clearly assigned between organisations	Relevant bodies take initiatives and maintain dialogue	relevant bodies are competent in applicable legal matters within organisations	stimulate more creative problem-solving strategies among organisations	Shared responsibilities for dispute resolution among organisations
	10 Public participation	Non participation	Informing	Consultation	Placation	Partnership	Delegated power	Citizen control and power
Spatial Data Infrastructure and services	11 Data creation: collection format	Specialised data format usable only Internally within agency	PDF swapping	Data methodically collected among agencies	Relational data files in excel	Geo-coded dataset overlay and referencing	Seamless interactive, rich and regularly updated data,	Real time data collection across agencies and processes
	12 Data coordination and information flow	Information flow is restricted within individual agency flow	Data awareness: information is published in a medium that could be shared	Specifically required information is shared between agencies	Project specific information is shared between processes	Linkages among data management units with rules guiding privacy and copyright	Interactive data management strategies to overcome legal issues	Dense Network of information flow across functions and agencies

Integration aspects	Integration Parameters	Measurement Variables (to determine present level of collaboration between organisations)						
		<i>No integration</i>	<i>Cooperation</i>		<i>Coordination</i>		<i>Collaboration</i>	
		0 No known Integration	1 Independent resource sharing	2 Consulting each other	3 Coordinating activities	4 Interdependent management	5 Partnership organisation	6 Formal merger
Spatial Data Infrastructure and services	13 Storage and Maintenance of data	Internally within agency	Independently shared responsibilities for data storage	Consultation among agencies to ensure good quality	Coordination between processes to ensure accuracy and currency	Eliminating non-optimal duplication	Value added in a collective way to make it reusable	Information stored by coordinates and considered spatially enabled
	14 Technology and technical issues	Available technology is customised for internal use only	Organisations open to external developments	Consultations between agencies to identify common application	Coordination of processes between agencies to identify common applications	Interdependent application across processes	Agreement on access networks and standards	Nationally compatible application network
	15 Data services funding/pricing model	Cost borne by individual agency	Informal sharing of cost among agencies	Structured sharing of cost among agencies	Cost shared between processes	Cost shared between processes guided by specific rules	Sequencing of financing mechanisms	Datasets as public good (Free- no cost)
	16 Spatial datasets dissemination and use	Internally available only in silos (not shared)	Information is shared minimally	Available to other institutions	Projects' related and directed information sharing	Tactical information sharing	Data are shared across organisations in real time	Nationally web enabled real-time datasets

5.6 Chapter summary

This chapter explained the strategies for the development of inter-agency integration assessment framework. Three basic integration aspects: land management policies, land administration processes and data infrastructure were identified and classified into sixteen parameters. It is conceived that an agency might be high on some parameters and low on others. Corresponding measurement variables were identified and conceptualised as a continuum (cooperation, coordination and collaboration). A two-dimensional matrix was developed to allow for effective measurement of the level of inter-agency integration. At the one end of the continuum are organisations that hardly relate to each other. On the other end of the continuum are organisations that have merged into a new entity through merged authority and capabilities. In the mid-range are organisations that share information, or undertake coordinated initiatives or develop shared-power arrangement such as collaborations. The tool is developed for assessing one-to-one relationship, one-to-many relationship and many-to-many relationships.

The next chapter (Chapter 6) uses the inter-agency integration assessment framework developed in this chapter to progress the assessment of different levels of inter-agency integration in Australia and Nigeria. The outcomes of the analysis provide bases to develop improvement strategies (LAIFH) in Chapter 7.

Chapter 6

Results of inter-agency integration assessment

“ *Planning authorities and responsible authorities should endeavour to integrate the range of policies relevant to the issues to be determined and balance conflicting objectives in favour of net community benefit and sustainable development for the benefit of present and future generations.*

Clause: 10.04. Victoria *Planning* scheme ¹⁰

”

¹⁰ http://planningschemes.dpcd.vic.gov.au/aavpp/10_sppf.pdf

6.1 Introduction

As shown, it is generally argued that better interactions will promote efficient development of data infrastructure, which in turn promotes good policies, supports better processes, and offers efficient services. It is also argued that good policies and better processes will facilitate delivery of developable land for housing. The IIAF, as developed in Chapter 5, offers a method to verify these assumptions.

To this end, the IIAF is used to determine the level of inter-agency integration in Australia and Nigeria and the results are presented here in Chapter 6. The chapter explores the inter-relationships between agencies responsible for land administration and housing in these contexts. It also explores their level of interactions, using the sixteen parameters developed in Chapter 5. This is set to accomplish the fourth research objective. The analysis is intended to achieve two things: to reveal the ways in which integration and inter-agency arrangements operate especially in the study areas; and in this regard seek to validate the reliability of the IIAF. It is also meant to achieve the aim of the research by providing sufficient analysis for the development of LAIFH.

The results of the case study areas: Nigeria and Australia are presented separately. The first part (of each of the case studies) summarises the qualitative results as context for a better understanding of the quantitative sections. This involves discussions of the profile of the case studies (Australia–Victoria–Melbourne) and (Nigeria–Lagos State–Lagos Mega City). It also involves a discussion of the involvement of the different levels of government (local, state and federal) in land delivery. This is followed by a discussion of the links between land administration and the organisation of housing production (sections 6.3.3 and 6.4.3). With the first part providing sufficient background, the second part (sections 6.3.4 to 6.3.7 and sections 6.4.4 to 6.4.7) focusing on the understanding of interdependence of agencies and the analysis of the levels of inter-agency integration.

Before a detailed discussion of the assessment of the levels of inter-agency integration further validation of the IIAF, using the results of the online survey is considered first.

6.2 Further validation of Inter-agency Integration Assessment Framework

It is important to validate the inter-agency assessment framework and check for its appropriateness using the perception of respondents from the online survey. Although, the configuration of the assessment framework, based on how it was developed (through the review of literature and interview responses), allows self-validation of each of the parameters; however, this is considered not sufficient, hence, the adoption of *Structural Equation Modeling* (SEM) with *Partial Least Square* (PLS).

SEM with PLS performs *confirmatory factor analysis*. It is used here to validate the assessment parameters by relying on the responses of respondents based on the perception of what is desired in terms of inter-agency interactions. To achieve this, some latent variables were derived from the assessment parameters and coded. Latent variables are research constructs. They are abstractions that cannot be measured directly (Table 6.1). They include perception variables, as it is the case in the present research.

With this approach, it is assumed that if the constructs are valid then the corresponding assessment parameters are valid. In other words, the validity of the constructs is used to validate the integrity of the assessment parameters. To achieve this, two validity elements are considered: *convergent validity* and *discriminant validity*. The two are products of a larger scientific measurement concepts know as *construct validity* (Straub et al, 2004).

Table 6.1 Latent and measurement variables to assess and validate IIAF

Integration Aspects	Latent Variables (LV)	Description of Measurement Items (Parameter Variables)	Parameter Variable Codes
Land management policy	Policy	Economic considerations	P1
		Environmental considerations	P2
		Social considerations	P3
Land administration processes	Institutional Processes	Communication between agencies	IP1
		Public participation	IP2
		Organisational structure	IP3
		Commitments and responsibility	IP4
	Institutional Capacity	Resources of the agencies	IC1
		Dispute resolutions	IC2
		Capacity building	IC3
Data infrastructures	Data Management	Data creation: collection format	DM1
		Data coordination and information flow	DM2
		Storage and maintenance of data	DM3
		Technology and technical issues	DM4
	Data Services	Data services funding/pricing model	DS1
		Spatial datasets dissemination and use	DS2

The SEM-PLS model establishes the convergent validity between the measurement variables and the latent (construct) variables. The measurement variables are P1-P3; IP1-IP4; IC1-IC3; DM1-DM4; and DS1-DS2 (Table 6.1 for detailed description). *Policy_Optimum*, *Process_Optimum*, and *SDI_Optimum* as indicated in the model (Figures 6.1 and 6.2) explain the respondents' perception of optima levels of the integration aspects (land management policy, land administration process and Spatial Data Infrastructure).

This model helps to determine how the measurement variable loads on the construct variables. It also illustrates the explanatory power and the path coefficients. The explanatory power of the model is the amount of variation in the independence constructs that can be explained by the model. The results of the desired levels of integration are modelled for Australia and Nigeria as shown in Figures 6.1 and 6.2 respectively. In these two figures (Figures 6.1 and 6.2), the mean R^2 for the five constructs: Policy, Institutional Process, Institutional Capacity, Data Management, and Data Services, on *Desirability* in the models are 0.844 and 0.885 for Australia and Nigeria respectively.

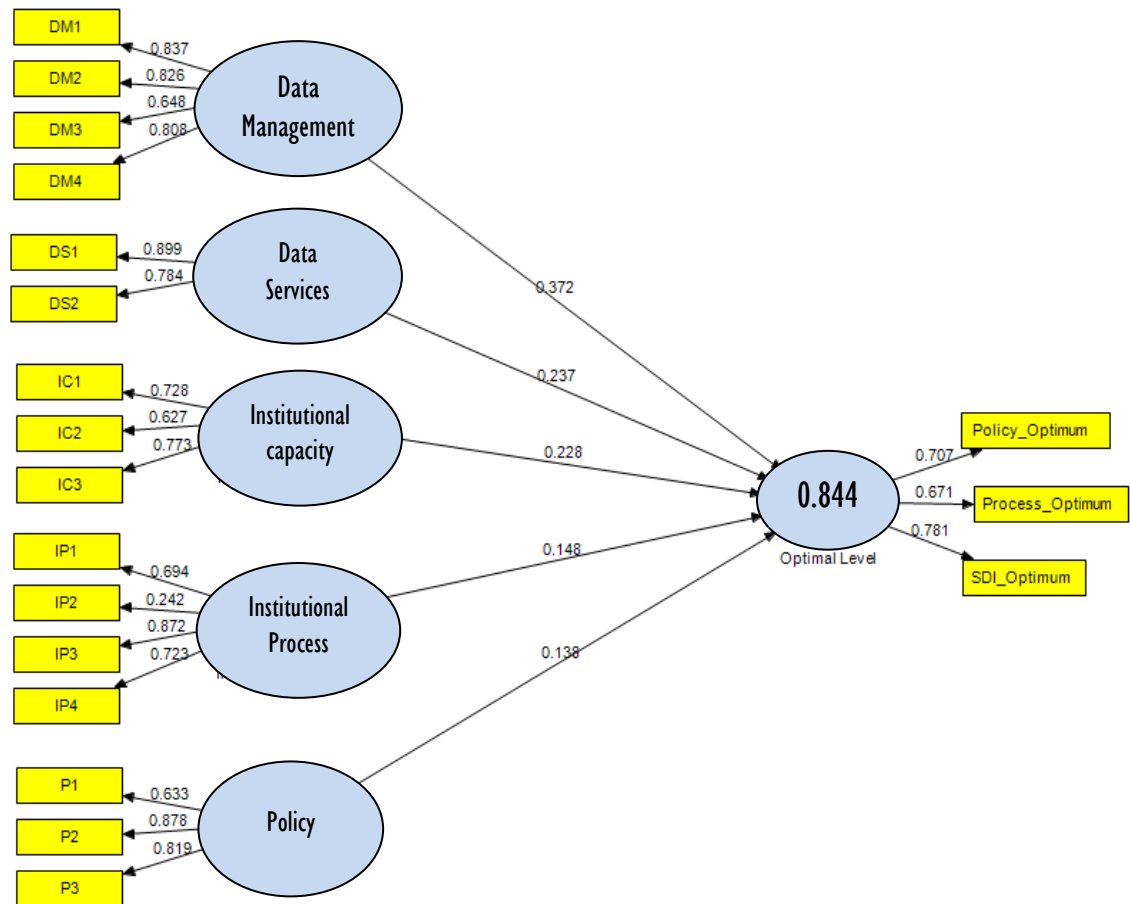


Figure 6.1 – Interdependence of constructs in explaining desirability of inter-agency interaction (Australia)

This indicates that 84.4% and 88.5% of variance in the construct variables for Australia and Nigeria respectively can be accounted for by the structural models. This suggests that the constructs simultaneously explain the desired levels of interaction between agencies. It also confirms the internal consistencies of the constructs.

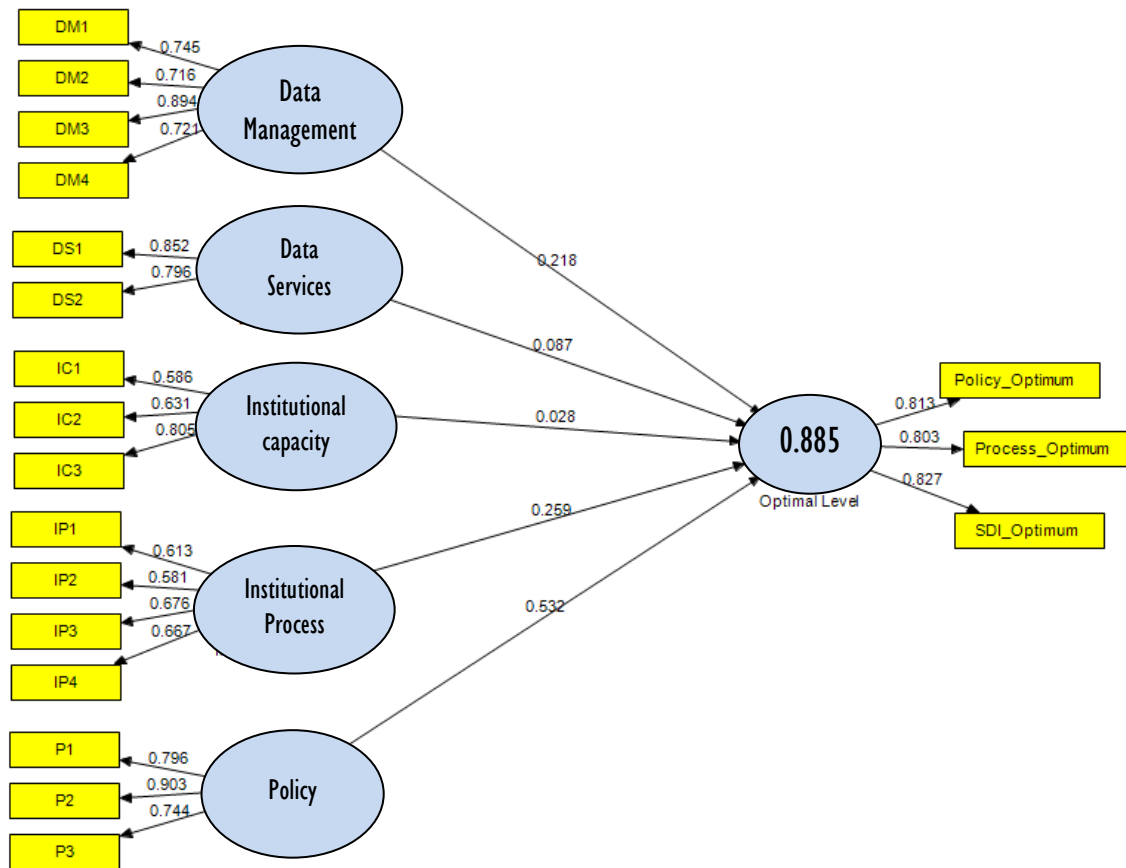


Figure 6.2 – Interdependence of constructs in explaining desirability of inter-agency interaction – Nigeria

The models (Figures 6.1 and 6.2) confirmed the reliability and validity of the parameter variables. In this regard, the models provide structure for understanding the relationships between perceptions of integration between: policy, institutional processes, institutional capacity, data management and data services.

Having satisfied the validity requirement, the chapter progresses to the analysis of inter-agency integration by, first, undertaking contextual analysis of the case study areas. In this regard, the linked processes between land administration and the organisation of housing are discussed.

6.3 Australia: Case study analysis

This section analyses the levels of inter-agency integration in the context of housing production in Australia. The analysis focus on the following themes: profile of Australia to provide insights into the context, discussions on the involvement of different levels of

government regarding land administration and housing, and the levels of inter-agency integration across and between levels of governments using the assessment tool developed in Chapter 5.

6.3.1 Profile of Australia

- *Geography and Population*



Table 6.2 Profile of Australia

Land Area	7.692 Million km ²
Population	22,015,576 (July 2012 est.)
Language	English 78.5%, Chinese 2.5%, Italian 1.6%, Greek 1.3%, Arabic 1.2%, Vietnamese 1%, other 8.2%, unspecified 5.7% (Census 2006)
Currency	Australian dollars (AUD)
Gross Domestic Product	\$917.7 billion (2011 est.)
Gross Domestic Product (PPP)	\$40,800 (2011 est.)

Source: <https://www.cia.gov/library/publications/the-world-factbook/geos/as.html>

Figure 6.3 – Australia location in global context

Source: http://en.wikipedia.org/wiki/File:Australia_%28orthographic_projection%29.svg

Australia (Figure 6.3), with a land area of 7.692 million square, is the sixth largest country by landmass in the world. It has a population of approximately 22 million (Table 6.2). The population is largely concentrated in the capital cities along the coastal areas where there is higher precipitation. Australia's population stood at 2.9 people per square kilometre by June 2011 and 1 per cent of Australia's land area contains 84 per cent of the population (ABS 2011). This presents a major challenge to the growth and management of land for residential development.

- *System of government in Australia*

The Australian federation consists of six states and two territories (herein after referred to as *state*). Australian constitution determines intergovernmental relations. Power is often shared between the three levels of government: federal, state and local. The federal and state parliaments, as well as, local councils have exclusive jurisdiction in a number of areas with each level of government making laws on matters within its jurisdiction. However, if there is conflicting law, the federal law takes precedence.

Within this structure, the states and local councils make their own policy decisions unless there is an overriding national imperative for a single nationally consistent policy.

Federal policies to implement global agenda, directly or indirectly affect the management of land and the growth of the cities. In such cases, the responsibility of the states and local governments is expected to reflect collaboration in order to achieve national consistency for effective federal decision making. In this regard, the management of physical and economic developments is of significant importance.

- *Economy*

Much of Australia's revenues is generated through taxation and is collected by the federal government. This highlights the dominance of the Commonwealth over the states. The largest component for the state and local governments' revenue was property taxes (ABS, 2011). Australian states are responsible for land administration and land title registration. The desire to consolidate revenue generation through property taxes could possibly explain the unwillingness of the states to cooperate on matters relating to land administration that is essentially a state constitutional responsibility. The situation is not significantly different at the local government level, with each level of government protecting its interest regarding revenue generation.

The following sections discuss the role of each level of governments in land management and housing development.

6.3.2 Land delivery and the organisation of housing production in Australia

The management of land involves the efficient and effective control of land for public and private use. This translates to different outcomes, and reflects how decisions are made at each level of government by revealing the interactive cause and effect relationships. The interest here is to explore past and present land management strategies and the implications for housing and urban development in Australia.

- *Jurisdictional involvement in land management and housing production: federal government*

Land administration and housing production in Australia is reflected in the National Policy for the management of Australian major cities. This follows from a growing concern and interest at a national level to address the car dependent, sprawling morphology of Australian capital cities; there are now expectations to encourage the development of affordable housing in the established suburban areas and activity centres. Initiative like urban containment through the metropolitan plan is advocated as a major strategy to progress this. Table 6.3 presents a summary of federal government's past and present involvement in housing and urban development in Australia.

Table 6.3 Summary of Australian government involvement in housing and urban development since World War II

1920s–30s	Investment in state and territory urban road systems by the Australian Government
1943	Creation of the Commonwealth Housing Commission
1945	Commonwealth – state Housing Agreements
1945	Creation of the Commonwealth Department of Works and Housing
1950s	Australian Government pressure on states to sell public housing to sitting tenants
1954	Major commitment to building Canberra and establishment of the National Capital Development Commission (1958)
1960s	Implementation of first home owners scheme
1964	Creation of the Commonwealth Bureau of Roads to examine urban and rural roads needs
1970s	Major commitment to rebuilding Darwin, reflecting Australian Government responsibility for territories, including the Australian Capital Territory and the Northern Territory
1972	Creation of the National Urban and Regional Development Authority, which became the Cities Commission
	Creation of the Department of Urban and Regional Development and allied initiatives, including the Area Improvement Program, the Australian Assistance Plan, the Sewerage Backlog Program, local traffic calming programs and the creation of land commissions
	Creation of the Department of Environment with urban responsibilities including the development of the Environmental Impact Statement
1973	Expansion of Australian Government assistance to local governments by way of the reconstituted Commonwealth Grants Commission
1975	Creation by the Australian Government of the Heritage Commission which had concern for built (that is, urban) as well as natural heritage
1975–83	Creation of the Department of Environment, Housing and Community Development
1991–96	Creation of the Building Better Cities Program
1990	Development of the national Building Code of Australia
1995	Creation of National Competition Policy directions that have restructured urban service provision
1998	Creation of the Development Assessment Forum as part of the micro-economic reform agenda—emphasis on decision-making efficiency and harmonisation of development approval processes across the nation
2007	National Affordable Housing Agreement (NAHA),

2007	National Rental Affordability Scheme & Stimulus Package
2008	Formation of Infrastructure Australia, the Major Cities Unit, the Building Australia Fund and the Australian Council of Local Governments
2009	Establishment of the Australian Centre for Excellence in Local Government
2009	Agreement by the Council of Australian Governments (COAG) to a national objective and criteria for the planning of Australia's cities
2010	Public housing agreement NARA...
2011	Productivity Commission

Source: Augmented from Brendan Gleeson (2006)

http://www.infrastructure.gov.au/infrastructure/mcu/files/NUPBP_Complete.pdf

It could be inferred, as shown in Table 6.3, that the role of federal government in housing production is either blurred or focused depending on the prevailing administration's policy towards housing production. For example, parts of the focused involvement of government in the 90s included funding of specific projects under the *Building Better Cities* program to regenerate and revitalise the older industrial areas. Thereafter there was an observed period of neglect until after the 2007. Of particular interest is the Council of Australian Governments (COAG) *agreement to a national approach to capital city planning* in December 2009 (Appendix IX). This allows strategic plans to meet a set of nine criteria by 2012. The criteria were intended to ensure that Australian cities have 'robust, transparent and long-term planning systems in place to manage population and economic growth... improve housing affordability and tackle urban congestion'.

The recent policy evolving from this initiative focuses on efficient delivery of developable land and promoting city growth management.

- *Land management and housing development: state government involvement*

Constitutional arrangement in Australia puts the responsibilities of land-use planning on the state government. Victoria, the case study state (Figure 6.4), controls and regulates the laws that deals with the ownership, sale and purchase of land, including housing, as well as the use and the development of land.



Figure 6.4 – Map of Australia Victoria showing Victoria

Victoria is Australia's most densely populated state, this make it the most compact state. It occupies about 3% of Australia's land area but with approximately one-quarter of its population. Within Melbourne Statistical Division, the Statistical Local Area (SLAs) with the greatest population densities were Melbourne City – Inner; 8,200 people per km² and nearby Port Phillip – St Kilda; 6,500 people per km² (ABS, 2011).

- *Land administration and housing production in Victoria*

Victoria, like other states in Australia controls essentially land administration functions: land tenure, valuation and taxation, use and development. These functions, as would be expected are split among many agencies and departments. This arrangement presents a lot of challenges in dealing appropriately with issues that cut across many agencies.

In the domain of land-use planning and housing, some of the recent initiatives include the development of Melbourne 2030: Planning for Sustainable Growth, along with six draft implementation reports. Melbourne 2030 has been informed by whole-of-government objectives and strategies. It is thus expected that its implementation will involve working across government. Table 6.4 outlines key planning policies and strategies that have helped to shape the growth and development of Victoria, most especially metropolitan Melbourne.

Table 6.4 Melbourne's Strategic Planning History

1929	A Plan for General Development
1954	Melbourne Metropolitan Planning Scheme
1954	Melbourne Metropolitan Planning Scheme 1954 – Survey and Analysis
1971	Planning Policies for the Melbourne Metropolitan Region
1974	Report on General Concept Objections
1981	Metropolitan Strategy Implementation
1995	Living Suburbs
2002	Melbourne 2030
2008	Planning for all of Melbourne,
2008	Melbourne 2030 audit report
2008	Melbourne 2030 a planning update – Melbourne@5Million
2009	Delivering Melbourne's Newest Sustainable Communities
2012	Melbourne's Metro Strategy

Source:

<http://www.dpcd.vic.gov.au/planning/plansandpolicies/planningformelbourne/planninghistory>

The main tenet of most of these policies centres on making the best use of land in a way that will guarantee efficient and effective land market. As revealed through most of these documents, it was considered important that if better land management could be achieved then this will support liveability and sustainability of Victoria, especially Melbourne.

For example, in 2008 two integrated policy statements were released, Melbourne 2030: a planning update – Melbourne @ 5 million and The Victorian Transport Plan. The two documents offered a long-term plan for managing Melbourne's growth and outlined a number of strategies to ensure that the city remained liveable and sustainable.

The initial efforts culminated in the preparation of another document '*Delivering Melbourne's newest sustainable communities*'. This focused on land use, transport and environmental initiatives. Melbourne's Metro Strategy (2012) is a work in progress. It essentially focuses on the inherent problems of the activity centres as contained in the Melbourne @ 5 million. It is not clear at this stage the central focus of *Melbourne's Metro Strategy* proposal. In all of these, different challenges face the implementation of each initiative. This is not only limited to the state but also the local government areas.

- *Land management and housing development: local government involvement*

Local council's involvement in land delivery and housing could be classified into direct and indirect. Direct involvement refers to the actual provision of housing by local

governments acting individually or in partnership with others. Indirect involvement refers to the role that local governments play in facilitating the provision of housing by others. Local government's involvement in housing can be identified as involving four broadly defined areas of activity: planning, production, consumption and management (Purdon and Burke 1991, BBC 1995, MAV 1999, Gurran 2003).

However, the way local governments are conceived and structured presents some dilemmas in the management of local areas. Local governments are the creation of the state government. There is a considerable range of differences and diversity in local councils. While this arrangement might not be a problem on its own, it was observed it provided a recipe for dissenting opinions across the functions of local government and those of the state. Only Melbourne metropolitan councils were included in the survey and analysis (Figure 6.5).



Figure 6.5 – Maps of Melbourne Metropolitan Councils within Victoria
Source: www.dpcd.vic.gov.au/planning/planningapplications/learn-how-to-apply/application-forms#minister

As observed through desktop analysis, local governments play a significant role, directly or indirectly, in influencing local housing opportunities through its various planning and *regulatory responsibilities*. Most often, councils do not want to give up their authority, hence most time they struggle with the state on strategic planning issues. This, some scholars argued, impacts housing outcomes.

6.3.3 Land Administration functions and the organisation of housing production

To provide context for the organisation of housing in Australia, it is important to understand the linked processes between land delivery and the organisation of housing production. These linked processes are briefly discussed along the land administration functions of: land tenure, land value, land use and land development.

- *Land tenure and registration of title*

Australia uses the Torrens System of land registration. This system was introduced as a result of a shift from fiscal to legal cadastres, first in South Australia in the 1850s and later adopted in other parts of the country. With Torrens System, *Title* to land was not based on private deeds of transfer, as it is the case in England and some other countries, but on the land titles themselves that were registered in an official Register of Titles. Arguably, the Torrens system is considered reliable in supporting the land market systems better than the deed system.

As observed, the level of development of the title registration in Australia allows a structured system and a linked arrangement between ownership rights and the determination of development rights.

- *Land valuation, taxes and charges*

Land value most often determines the tax regimes while the tax regimes were observed to impact on land delivery for housing. The National Housing Supply Council noted in its 2010 report that the constraints on the efficiency of the housing market included the tax systems. In Australia, taxes and transfers come in various forms to include: Goods and Services Tax (GST), Stamp Duty on land transfer and most importantly, in Victoria, the Growth Areas Infrastructure Contribution (GAIC). The GAIC applies to growth area land brought within the Melbourne Urban Growth Boundary (UBG) in 2005–06 and in 2010 (and thereafter) which is zoned for urban development. The thinking behind this policy is that when rural land is rezoned and brought forward for urban development, such land has improved in value. Therefore, the landowner is required to pay betterment in form of a GAIC.

There are, however, at the moment issues regarding the determination of the value of GAIC: Who should pay? When should the payment come into operation? This is generating a lot of debates and criticism especially among the developers. The implication of paying this is that developers transfer the GAIC burden to the respective builders. There is then expected to be a continuous increase in land component as a proportion of total cost to build and the overall implications for the organisation of housing production.

- *Land use: zoning and overlays*

As a part of strategic planning activities, Planning scheme controls land use and development within a municipality. It contains state and local planning policies, zones and overlays and other provisions that affect how land can be used and developed. In Victoria, Local council makes most of the planning decisions that affect its municipality. The decisions are to be structured within the overall state, municipal and local planning policy frameworks. Planning schemes provide framework for implementing statutory work.

- *Planning permit process*

Planning permit process explains the development assessment procedures and the implications for land delivery.

Figure 6.6 illustrates the planning permit process in Victoria–Australia. It was observed, through the insights offered by the interview respondents, that the process

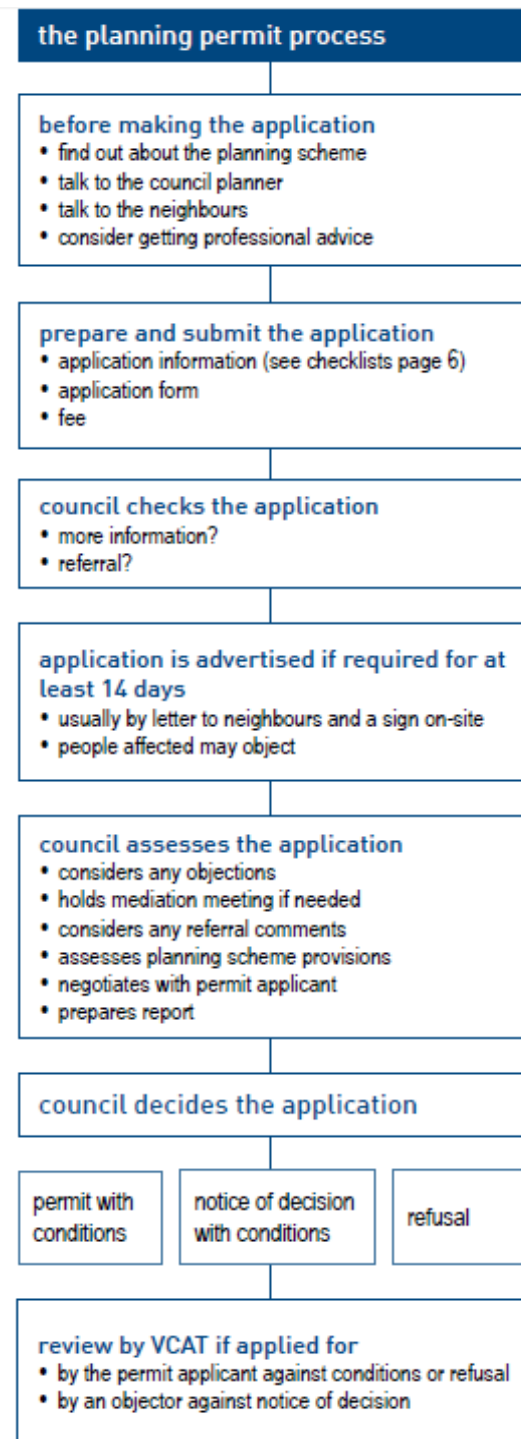


Figure 6.6 -The planning permit process (DPCD, website)

was generally not efficient as a result of inherent delays and the overall tangible and intangible cost associated. Also of concerns until lately, is the integrated and comprehensive dataset to assess council performance and the overall efficiency of the systems.

- *Land and infrastructure development*

The land delivery systems in most Australian cities involve the engagement of the major land developer, especially in the *greenfields*. The developers commit significant time and resources to make land developable by ensuring all facilities and infrastructures are provided. The custodian of the infrastructure, as well as, the subsequent management of the infrastructure is transferred to the local councils.

In summary, housing development is highly controlled and organised in Australia. Consequently, it is almost impossible to build without the ownership and the development rights. It was, however, observed that the interplay of the land tenure systems and land registration; land valuation, taxes; charges and grants (the administration of the First Home Owners Grant scheme and the First Home Owners Boost); land use and development assessment process; and land development were all found to influence land delivery and the organisation of housing in Australia. These are important contextual consideration for land management and housing production.

At this stage, it is important to map the interdependence of agencies' interaction as a first strategy to understanding levels of inter-agency integration.

6.3.4 Mapping Interdependence of agencies' interactions: Social Network Analysis

Social Network Analysis (SNA) statistical tool was employed to assist in the analysis and the visualisation of the levels of (observed) interactions among agencies. The approach offers a good platform to explore the interdependence of interactions between the studied agencies. With this approach, the relationships could be mapped graphically.

Through the analysis of approximate percentages of interaction between organisations with interrelated roles (as contained in part two of the questionnaire), many configurations of interactions emerged. These include: one-to-one relationship, one-to-many relationships and many-to-many relationships (Figure 6.7). This means there is more than one potential relationship between a particular organisation and another. In

this regard, interactions are *multi-layered*.

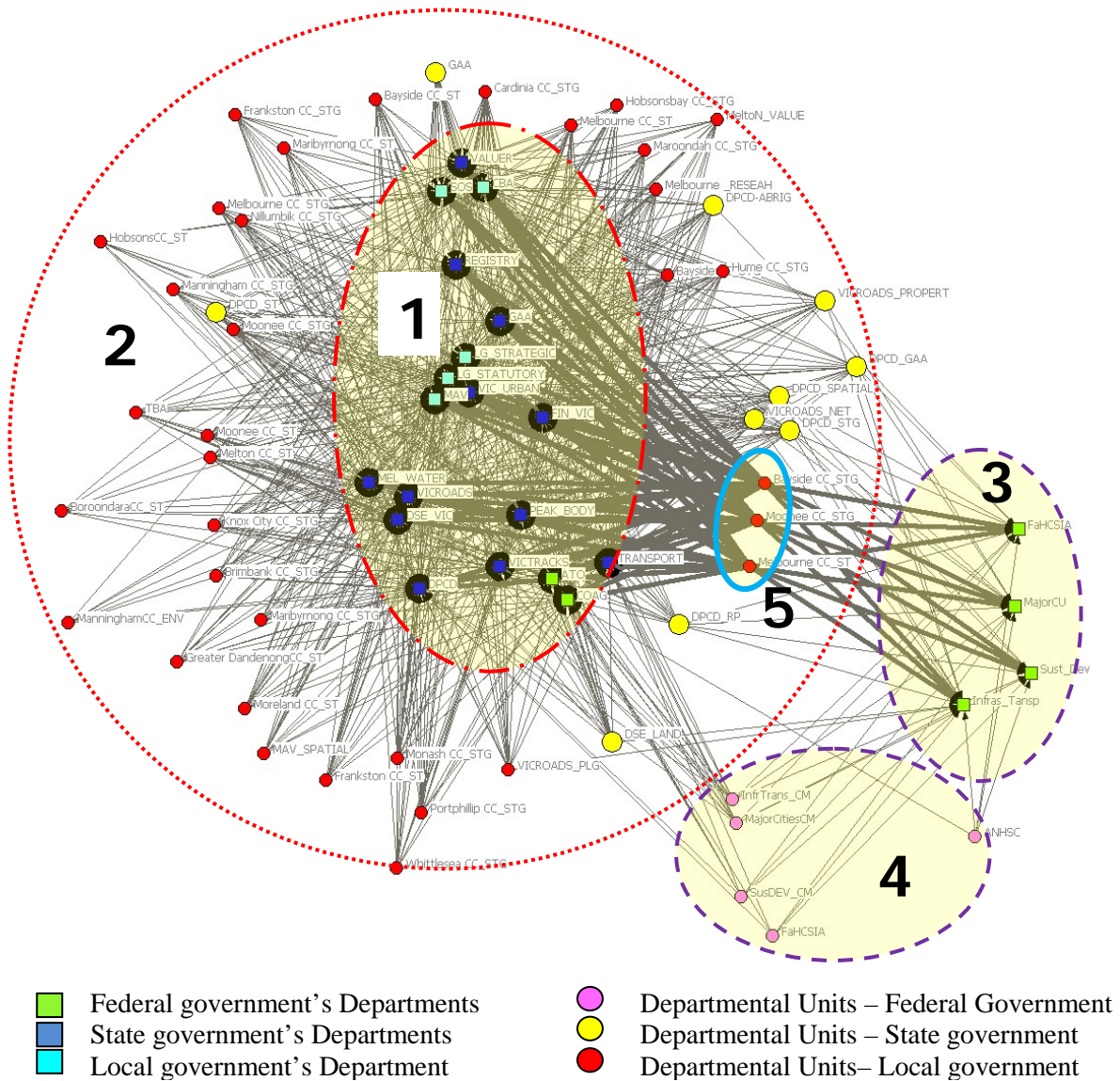


Figure 6.7 – SNA representation of agencies' interdependence of interactions (Australia)

Generated by UCINET Software: Borgatti, S.P., Everett, M.G. and Freeman, L.C. 2002. UCINET for Windows: Software for Social Network Analysis. Harvard, MA: Analytic Technologies

At the core of the interdependence of interactions, as shown in Figure 6.7 (area labelled 1), are essentially the State government organisations (Department of Planning and Community Development – DPCD, Department of Sustainable Environment – DSE, Vic Roads). This possibly explains why 34 out of the 51 respondents selected DPCD as the organisation that has the most significant role in land administration for housing and urban development.

The results of the online survey complemented the insight provided through the structured interview. Through this, DPCD was also recognised as playing central role in mediating policy formulation and implementation between federal and local councils. Most importantly are its roles in coordinating the activities of other agencies to develop strategic planning for the state in order to facilitate land delivery for housing production. However, some of the strategies offer no indication of how integration will be achieved, or who will be responsible.

Outside this are other clusters that are essentially federal government main departments and departmental units (area labelled 3 and 4). Outside the central core are the local government and state government departmental units (area labelled 2). It could be observed that in-between these clusters are few local government departmental units that have close ties with the state government and the federal government (area labelled 5). Three local governments were identified to belong to this category: Melbourne, Moonee Valley and Bayside. This necessitated further assessment to uncover what was the most likely reason for this pattern. It was discovered that the three local governments had some major projects that required the involvement of the three levels of governments in the strategic planning and implementation.

These include: Moonee Valley Council – *Ascot Chase Residential Development*. The development is located within the Maribyrnong River floodplain and the Ascot Vale main drain. As a result, extensive drainage and floodplain mitigation works are to form part of the development. Bayside City Council – *The development of Bayside Structure Plan*. The plans provide forward planning and vision for the development of the four major activity centres within Bayside. Melbourne City Council - *The Central City (Hoddle Grid) Built Form Review* is an important part of planning for Melbourne's future growth. Melbourne city is strategically located as Melbourne Central Business District; hence, its importance to all the three levels of government.

The pattern of interactions between agencies that deals with land and housing has been established. It is important to assess the level of integration based on the sixteen inter-agency assessment parameters to explore what those relationships (lines) actually mean. To achieve this, various approaches were adopted in a way to offer different perspectives given the multiplicities of agencies involved and the multiplicities of interactions.

6.3.5 Assessing the present levels of inter-agency integration

The first approach is to explore the responses by way of descriptive analysis. This is to provide a broad and general overview of the respondents' perception of inter-agency interactions. This is anticipated to gain improved understanding of the contextual factors of a linked process between organisation of land and housing production. The assessment starts with an appraisal of how planning policy objectives were developed and the identification of the contributory roles of the land and housing agencies.

- *Planning policy objectives*

Each level of government is supposed to be a key player in the strategic planning of city and the management of land. Each respective activity is expected to impact or influence the task and functions of other government agencies. It is, therefore, the interest of this research to find out which of the identified Planning Policy Objectives mostly impact the activities of the agencies studied. Eight criteria were considered in this regard: a more compact city; better management of growth; networks with regional cities; a greener city; better transportation links; a prosperous city; fairer city and geographic strategies. As shown in Figure 6.8, the most significant policy objectives to the agencies studied are: a more compact city, better management of growth, and better transportation link.

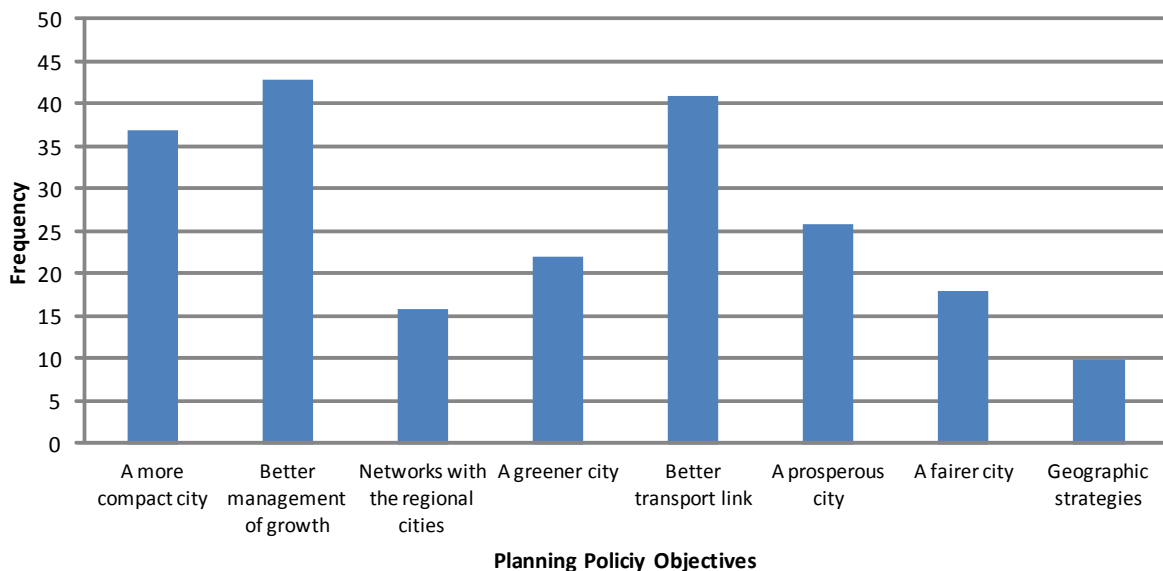


Figure 6.8 – Assessment of Planning Policy objectives (Australia)

This could be connected to the overall push to fulfil the global objective of a more functional and sustainable city as being advocated at the global and national levels. These important planning policy objectives are also observed to cascade down to the other levels of government.

Having considered what drives agencies policy objectives, the following discussions are focused on determining the present levels of inter-agency integration.

- *Observed levels of inter-agency integration*

Each of the sixteen parameters of inter-agency integrations assessment is discussed within the context of the challenges of inter-agency interactions. The discussion is focused on the combined results from the online survey and the perspectives of the interviewed participants. The responses for each of the assessment parameters were cumulated and tabulated into percentages. The levels of integration are indicated in the corresponding rows for the assessment parameters in Table 6.5.

Table 6.5 Observed levels of inter-agency integration: overall frequency distribution

Assessment Parameters	No known Integration (%)	Cooperation		Coordination		Collaboration	
		Level 1 (%)	Level 2 (%)	Level 3 (%)	Level 4 (%)	Level 5 (%)	Level 6 (%)
Economic policy considerations	5.9	11.8	54.9*	15.7	3.9	2.0	5.9
Environmental policy considerations	3.9	23.5*	23.5*	19.6	19.6	3.9	5.9
Social policy considerations	3.9	21.6	33.3*	23.5	5.9	5.9	5.9
Communication between agencies	2.0	5.9	13.7	62.7*	3.9	5.9	5.9
Organisational structure	2.0	25.5	5.9	17.6	37.3*	9.8	2.0
Resources of the agencies	9.8	15.7	19.6	25.5*	9.8	17.6	2.0
Commitments and responsibilities	0.0	11.8	23.5	33.3*	9.8	11.8	9.8
Capacity building	15.7	21.6	45.1*	3.9	7.8	3.9	2.0
Dispute resolutions	31.4	33.3*	11.8	11.8	5.9	0.0	5.9
Public participation	0.0	7.8	76.5*	7.8	5.9	2.0	0.0
Data creation: collection format	2.0	17.6	47.1*	7.8	17.6	5.9	2.0
Data coordination and information flow	9.8	9.8	23.5	25.5*	15.7	5.9	2.0
Storage and maintenance of data	27.5*	23.5	23.5	17.6	3.9	3.9	0.0
Technology and technical issues	39.2*	13.7	33.3	9.8	2.0	0.0	2.0
Data services funding/pricing model	58.8*	2.0	13.7	9.8	9.8	2.0	3.9
Spatial datasets dissemination and use	5.9	15.7	3.9	43.1*	25.5	3.9	2.0

*Highest percentage per assessment parameter

As shown in Table 6.5, the level of integration with the highest percentage frequencies as determined by the participants is highlighted for each assessment parameters. The economic, social and environmental policy considerations sit mostly on level two. This suggests that the present level of integration regarding policy considerations is much of *cooperation* among agencies with little of *coordination*. Regarding this, agencies have inherent intentions to benefit from one another. However, most of the agencies operate essentially with no formal rules, minimal resources, independent power, and not too clear policy goals.

When these observations were set against the *measurement variables*, it could be inferred that the willingness to align economic consideration was limited between agencies, and that environment considerations were mostly restricted to consultation among agencies. The study also revealed that defined social consideration existed between agencies but the strategies to pursue this were not consistent.

- *Assessing the parameters of land administration process*

As shown in Table 6.5, when parameters of land administration processes (communication between agencies; organisational structure; resources of the agencies; commitments and responsibilities; capacity building; dispute resolutions; and public participation) were considered, the overall observed pattern varied from *cooperation* to *coordination*. Most especially, an overwhelming majority (62.7%) of the respondents were of the opinion that in terms of communication there were structured communication flows between processes. A lesser proportion (37.3%) were of the opinion that the organisational structure usually promote inter-organisational network that focus more on agency products and functions. However, agencies' resources were mostly shared around specific projects and that staff willingness to collaborate with other organisations and agencies were guided by few formal rules.

In terms of capacity building, majorities (45.1%) of the respondents were of the view that agencies usually consult each other for similar professional training. However, regarding dispute resolution, the majority felt there were no known dispute resolution strategies between the agencies. There were some attempts to develop dispute resolution strategies in a few cases but in such cases responsibility for conflict management were confined and clearly assigned only within each organisation.

Regarding public inputs into agencies function, results of the online survey revealed that most of the participating agencies engaged the public through consultation. However, it could be inferred from the insight offered through the interviews that what most research participants consider as consultation was actually *informing*.

- *Assessing data infrastructure parameters*

A closer assessment of responses regarding data infrastructure parameters (data creation and collection format; data coordination and information flow; storage and maintenance of data; technology and technical issues; data services funding/pricing model; spatial datasets dissemination and use) revealed that:

Data creation and collection formats were *methodological and systematic*. This suggests that data collection essentially responded directly to the immediate needs of the respective agencies. In other words, data creation and formatting were driven by some independent strategy to create data for agencies' internal use. However, it was observed as indicated by the research participants that specifically required information is shared between agencies and that project-specific information is shared between processes. This suggests that data coordination and information flow were driven by the requirement to share data based on some specific project. Outside this, the data was confined mostly internally within agencies. The only logical explanation for this, is that data collection is driven largely by internal processes mediated by the cost of production.

Regarding data storage and maintenance, as shown in Table 6.5, it was revealed that data was stored mostly internally within agencies. Some of the respondents were of the opinion that there were independently shared responsibilities for data storage and that sufficient consultations were held among agencies to ensure good quality of stored data in order to make it amenable when there are needs to share the data.

With regard to technology and technical issues, some of the respondents felt the available technology was mostly customised for internal use only, while some thought consultations were held between agencies to identify common application when these are required or considered necessary. It was observed that agencies in these categories were closely aligned in functions and processes.

Closely related to this were issues of data funding and pricing models that remain one of the major challenges to the development of an efficient and effective data infrastructure in the study area (Australia). Currently, as attested to by the respondents, cost is primarily borne by individual agency to build an appropriate data infrastructure. Thus when data sharing is considered it becomes challenging to fix prices especially when some users are not willing or are not capable of paying appropriately to access the data.

The desire of the majority of people was that most datasets should be nationally web enabled in real-time, however, spatial datasets dissemination and use, from the perspective of the research participants, were project-specific. Data and information sharing were thus essentially driven by specific projects based on the understanding that existed between the custodians of data and the users.

The major challenges as revealed through the online survey and the insight drawn from participants interviewed were:

- i) inadequate publication of information in a medium and format that are consistent across land administration functions
- ii) challenges to overcome legal rules guiding privacy and copyright
- iii) limited network of information flow across land administration agencies
- iv) The issue of charging and cost recovery particularly provided a range of responses from the local governments. Most of the participants were advocating for cheaper and more effective ways of data management to enhance better decision making and productivities.

To assess this further, the results of the various ranking of respondents regarding their assessment of the observed levels of inter-agency integration were cumulated. To cumulate the responses, the total frequencies for all responses along each category were added up. The resultant pattern is illustrated in Figure 6.9.

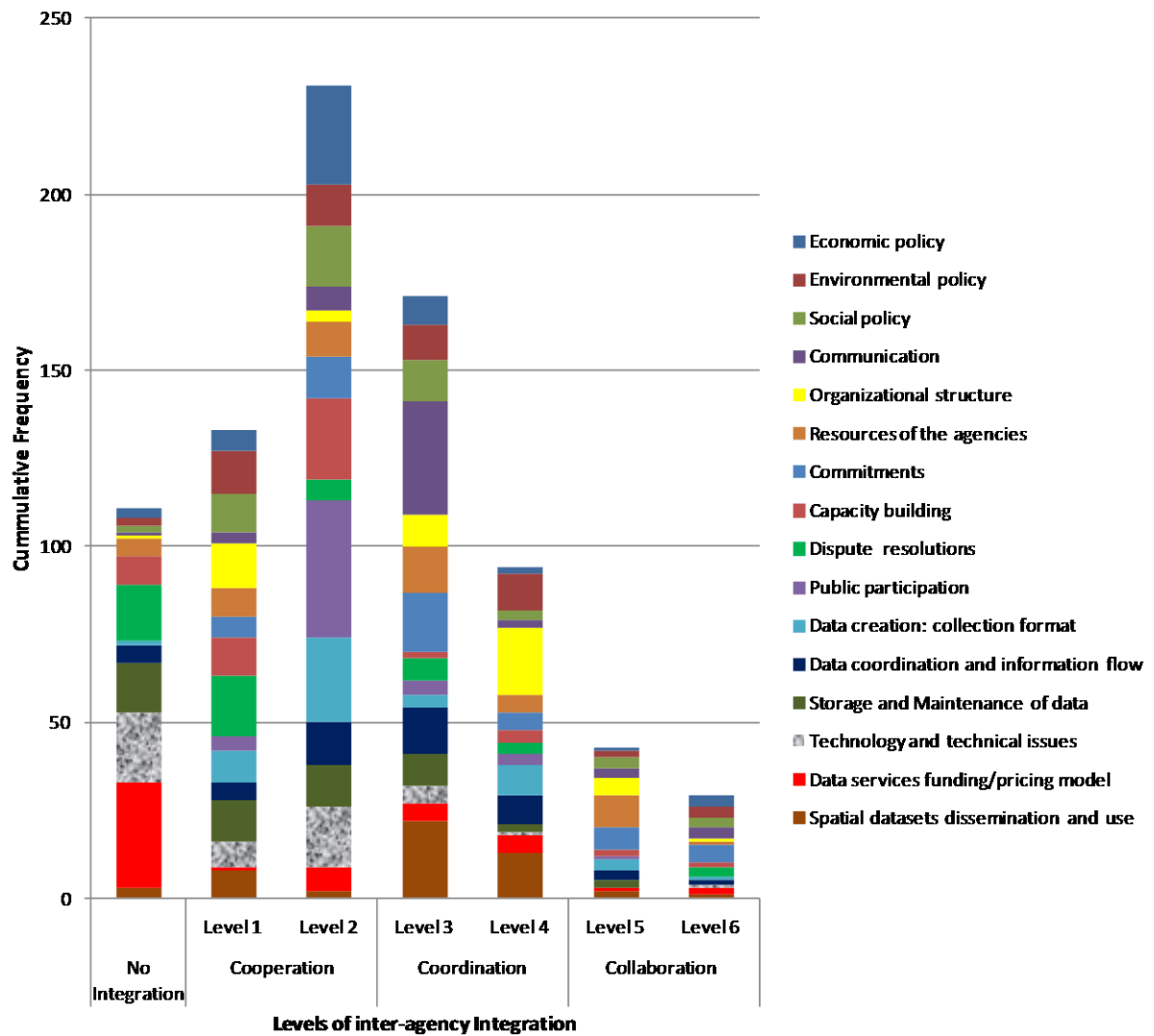


Figure 6.9 – Observed levels of inter-agency integration in Australia

Overall, as shown in a stacked columns bar chart (Figure 6.9) representing aggregate frequency distribution for inter-agency integration, it could be inferred that it is mostly of *cooperation* and substantially of *coordination*. This suggests that to a larger degree, there was a harmonious combination or interaction of functions or processes between some of the agencies. It also suggests that these interactions were based on few rules and limited resources. There were also noticeable interdependency and clear agency goals. There were, however, relatively fewer agencies embracing *collaboration*.

Another layer of analysis was conducted to understand observed levels of inter-agency integration across land administration functions. This was to allow for improved understanding of the inter-agency integration across: land tenure, land value, land use and land development. The categories of agencies that were identified in the responses

were: agencies that deal with registration of titles and the allocation of land (land tenure). Others were agencies that deal with land valuation (land value), land use control and planning permit, and agencies that deal with social and physical infrastructure (land development).

• **Observed levels of inter-agency integration across land administration functions**

To analyse the observed levels of inter-agency integration across land administration functions, the responses were stratified using the mean distribution values of responses. The patterns that emerged are shown in Figure 6.10.

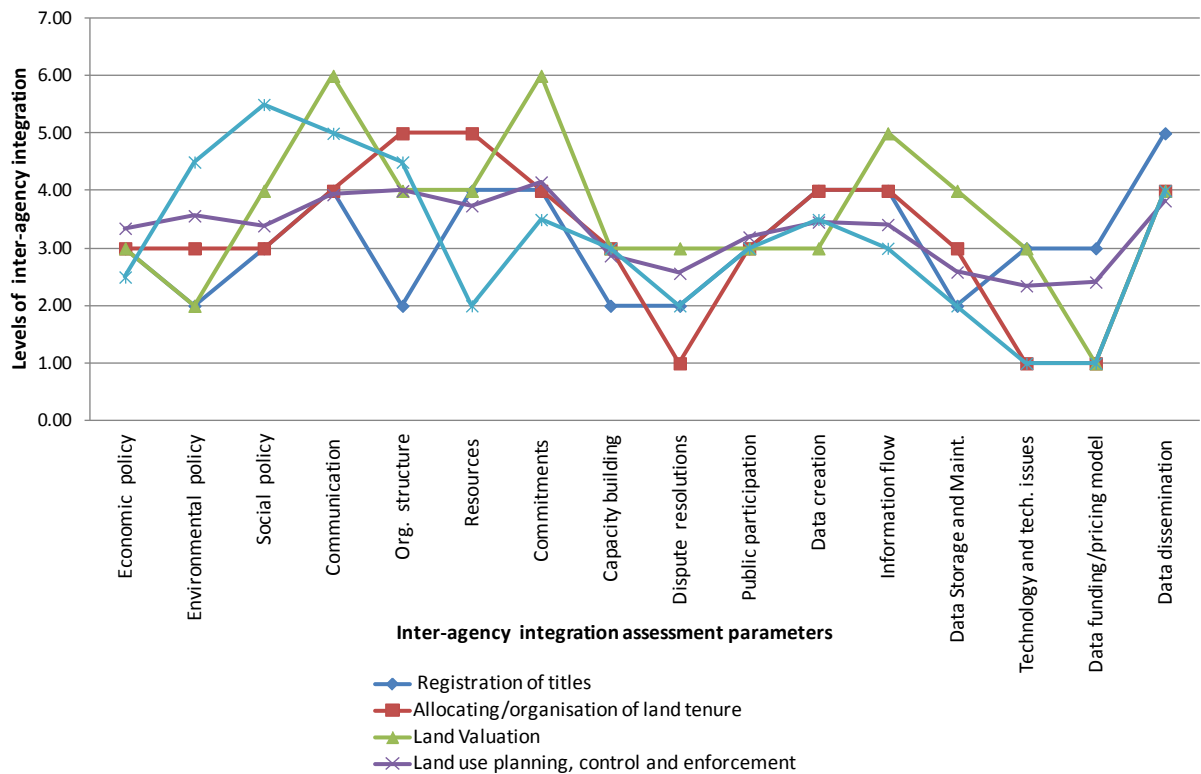


Figure 6.10 – Observed levels of inter-agency integration across land administration functions – Australia

As shown in Figure 6.10, by disaggregating the responses across land administration function, the observed levels of integration varied substantially. In this regard, there were marked gaps between the levels of integration between the different land administration functions. The most noticeable are the integration variables regarding policy formulation and institutional processes. This further confirmed the agency silo configurations as it currently prevails between land administration agencies in the study area. This level of variation is further clarified through some statistical measures in section 6.3.6.

- **Observed levels of integration between different levels of government**

It will also be valuable to disaggregate the level of integration between different levels of government. There were variations in the observed levels of inter-agency integration between different levels of government as presented in Figure 6.11. As shown in the figure, the variations in the levels of inter-agency integration were not as pronounced as it was the case across agencies. In other words, the results of the online survey do not sufficiently bring out the level of differences. Other than the indication of higher level of integration in the areas of: organisational structure; agencies' resources; and the commitment and responsibilities as attested to by the federal government agencies. There was no noticeable difference among other measurement parameters. However, it could be inferred from the respondents at the state level that, more time and energy is required to get the federal agencies to interact more efficiently with other levels of governments.

As one interview respondent observed, the federal government is:

‘...difficult to deal with and to be interacted with. They are predisposed to handling down instructions. This [power relation] does not give opportunity for effective collaboration’.

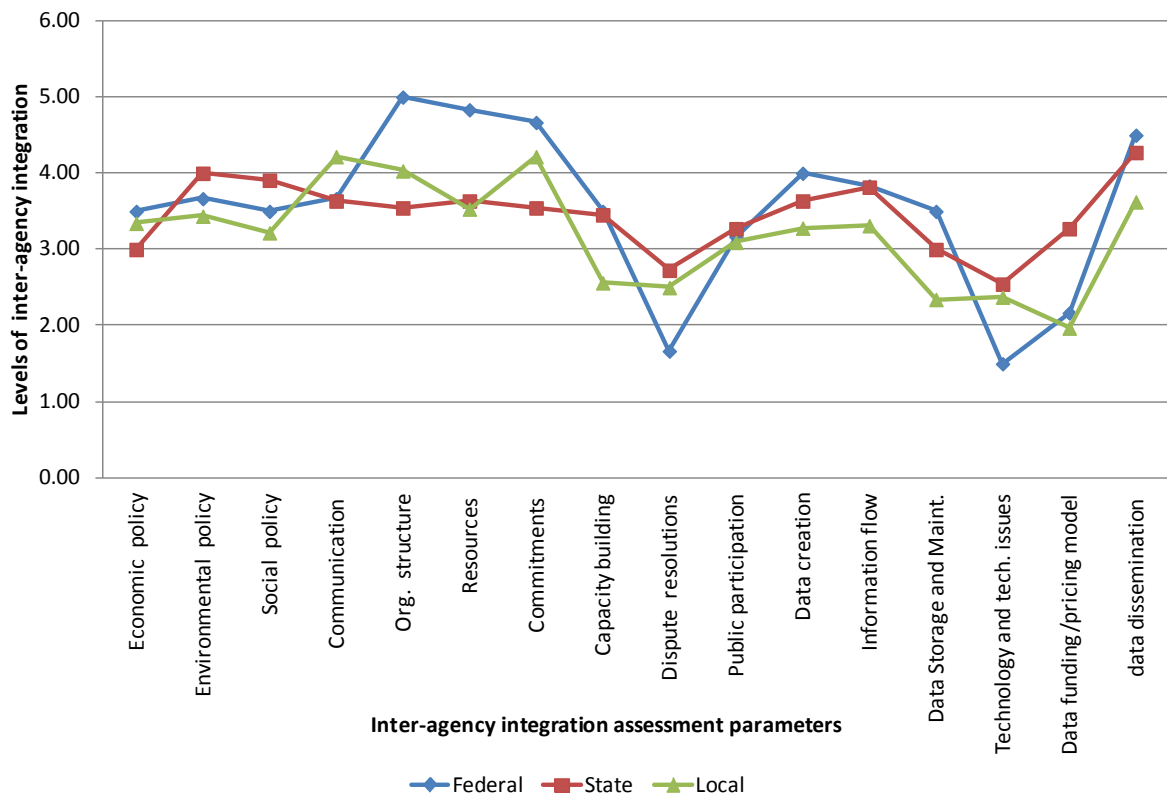


Figure 6.11 – Observed levels of integration between different levels of government

From the perspective of the state government, as observed through the insight offered by some of the state agencies, there were feelings of ‘constitutional encroachment’ from the federal government. This was particularly felt in the area of land administration, data sharing and collection of taxes. Therefore, within the scope of specific projects, key decision making was not always identified in the vertical and horizontal organisational structure.

The unequal power relations were equally felt between the state and the local governments. There was sufficient evidence to suggest that most local councils do guard their authorities, hence most time they struggle with the state especially regarding strategic planning issues. For example, the state government, favours higher housing densities along the transportation corridors, whereas, the local governments are more concerned with amenities of individual houses to respect the wishes of local residents. There is therefore an ongoing tension in this regard, with some development application referred to Victorian Civil and Administrative Tribunal (VCAT) for arbitration.

The present levels of integration as assessed by the respondents have been presented, it is important to consider what level of interaction is desired among agencies.

6.3.6 Assessing the desired levels of inter-agency integration

Determining the levels of interaction that is desired among agencies will offer a better way of assessing what could be done to improve interactions among agencies. Figure 6.12, shows that the desired levels, when all responses are combined. This stood at 4 (interdependent management) and peaked at level 5 (partnership among organisations). This suggests that most agencies desire more of coordination and most importantly more of collaboration that does not necessarily imply merger.

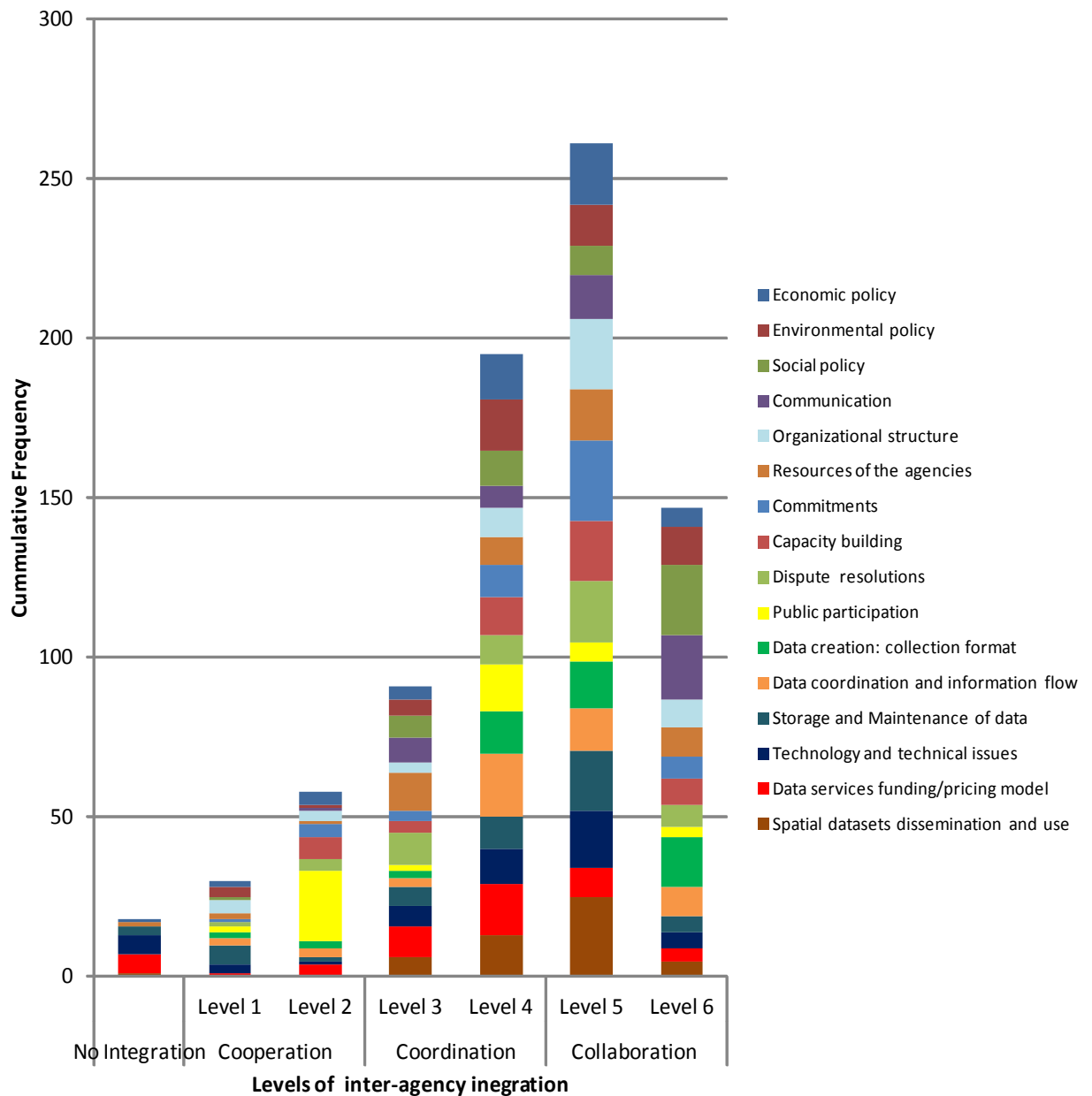


Figure 6.12 – Desired levels of inter-agency integration in Australia

The stacked column bars as shown in Figure 6.12, presents a cumulative frequency distribution for desired levels of inter-agency integration in Australia. One clear message from this was that most agencies included in the survey desired improved integration across land administration functions and between different levels of governments. For a better understanding, it is imperative to compare the observed levels with the desired levels of interactions to be able to gauge what could be done to improve integration.

6.3.7 Determining the gaps: observed and desired levels of inter-agency integration

The present levels of interactions as discussed above are now compared with the desired levels, as indicated by the respondents. This is represented graphically as shown in Figure 6.13.

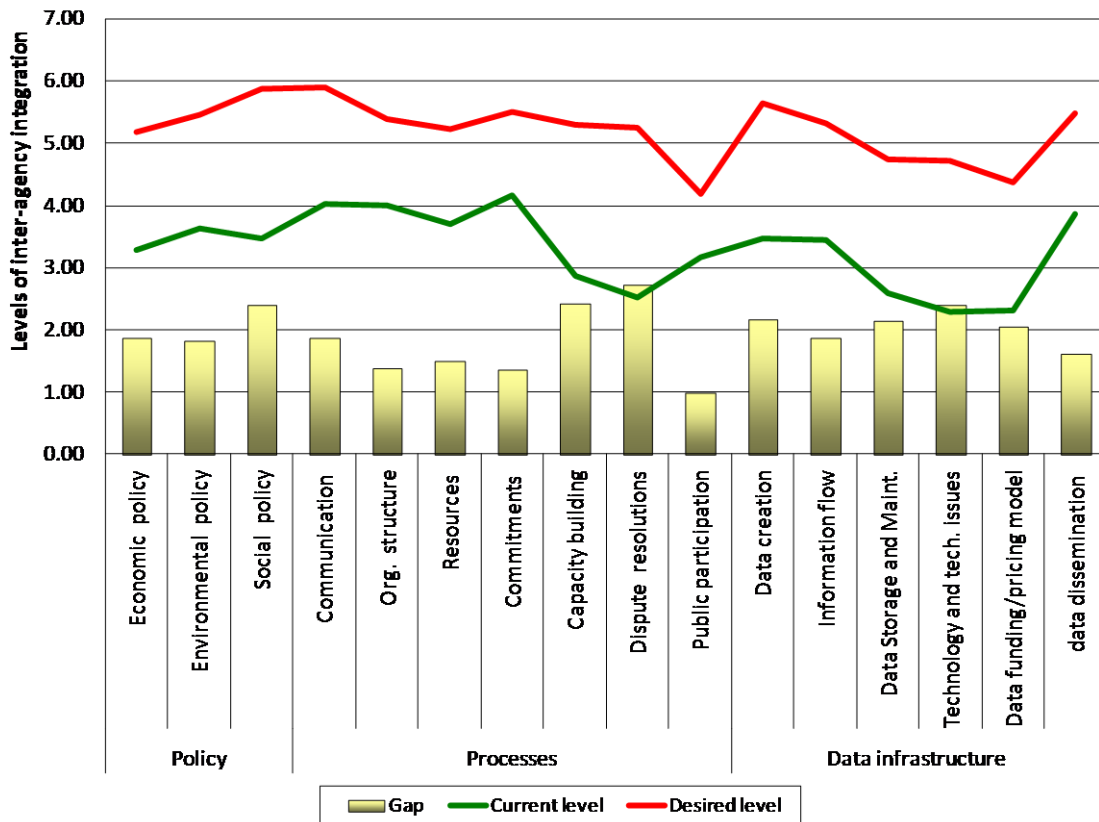


Figure 6.13 – Total mean difference: current and the desired levels of integration

The observed gaps, as illustrated in Figure 6.13, were calculated based on a simple mathematical estimation of the total mean difference between the two levels for each of the parameters. The observed gaps, as computed, suggested that the current levels of integration were considered undesirable relative to what the respondents thought should be the optima levels. The parameters with the most observed gaps – between current level of integration and the desired level – were: social considerations (mean gap of 2.41); capacity building (mean gap of 2.43); dispute resolution (mean gap of 2.73); data collection (mean gap of 2.18); data storage and maintenance (mean gap of 2.16); and technical issues (mean gap of 2.06).

A further assessment was considered to determine the causes of the gaps through a closer analysis of the responses from the interviewees. In this regard, it was discovered that to better manage and facilitate land delivery, the focus was increasingly shifting to

a better use of digital datasets. With the shift in focus come increasing expectations to develop capacity especially the managerial and technical skills.

However, with the increasing focus by the technocrats to increase capacity in order to satisfy the delivery of specific projects, evidence exists that this is being done at the expense of a broader social, economic and environmental issues. It was discovered that among the sustainability objectives, the social consideration was not given appropriate attention. The only logical reason for this is that social issues are usually contentious.

In addition, it was also observed that dispute resolution was not given adequate attention beyond the internal arrangement within the organisation to resolve issues. However, with the increasing need to create a dialogue between agencies come the increasing responsibilities to resolve differences.

With regards to data collection and format, most of the studied agencies had very good datasets that were collected for their internal use and the datasets were equally considered appropriate for their functions. The problem, however, is that it is usually very challenging when the datasets need to be integrated across functions because each were configured to operate on separate systems. As observed by some of the agencies, privacy and confidentiality were major issues regarding data sharing and usage. A strong integrated information base is required, as suggested by the respondents, to understand growth and changes in Australia's cities. This will assist in identifying issues and priorities for action in order to inform the best paths for public and private investment.

- *Statistical assessment of the observed gaps*

It is important, to test if the observed gaps between the current levels and the desired levels of integration, as reported by the respondents through the online survey, are statistically significant or whether they are essentially due to variability of perception and opinion. In this regard, it is imperative to conduct an analysis of the variability among the participants.

Some test statistics are useful to assess mean variations, for example, the Kruskal-Wallis Test and the Analysis of Variance (ANOVA). However, these two tests cannot identify precisely which pairs (current and desired levels) are significantly different




among the parameters. In this circumstance, as suggested by Brace et al. (2006), an independent testing of the pairs is required. Here, the Paired-Samples T-test becomes very useful.

Paired-Samples T-test procedure produces: descriptive statistics for each test variable; and the Pearson correlation between each pair with its significance. A confidence interval for the average difference in this case is set at 95%, leaving a margin of 5% error. To, successfully run these analyses, the difference of scores are assumed to follow a reasonably normal distribution. The assumption of normality was checked by computing the *skewness* and *kurtosis* of the distribution. It was concluded that the assumption of normality was not violated, thus the application of the test was progressed.

Specifically, the paired-samples T-test is appropriate whenever two related sample means are to be compared. The related sample means in this study: one for the present level and the other for the desired level are the two measurements taken on the same subject (integration parameters). The basic idea is that if the perception of the levels of integration and the anticipated levels had no effect, the average difference between the measurements should be equal to 0. This means there is no significant difference. On the other hand, if there is observed difference or gap, the average difference is not 0 and this suggests there are differences. Table 6.6 shows the results of the computation of T-test (Paired Samples Correlations).

Table 6.6 Total *mean* difference and T-test (Paired Samples Correlations)

Integration Aspects	Assessment Parameters	Total <i>mean</i> difference (Descriptive)				Paired Samples Correlations ('current' vs. 'desired')	
		Current level	Desire level	Gap	Rank	Correlation	Level of Sig
Policy	Economic considerations	3.29	5.18	1.88	8th	.411	.003*
	Environmental considerations	3.63	5.45	1.82	11th	.503	.000*
	Social considerations	3.47	5.88	2.41	3rd	.273	.052
Processes	Communication between agencies	4.02	5.90	1.88	9th	.234	.098
	Organisational structure	4.00	5.39	1.39	14th	.552	.000*
	Resources of the agencies	3.71	5.22	1.51	13th	.513	.000*
	Commitments	4.16	5.51	1.35	15th	.415	.002*
	Capacity building	2.86	5.29	2.43	2nd	.375	.007
	Dispute resolutions	2.51	5.24	2.73	1st	-.044	.758
	Public participation	3.18	4.18	1.00	16th	.419	.002*
Data Infrastructure	Data creation: collection format	3.47	5.65	2.18	5th	.200	.158
	Data coordination and information flow	3.45	5.31	1.86	10th	.285	.043*
	Storage and maintenance of data	2.59	4.75	2.16	6th	.496	.000*
	Technology and technical issues	2.29	4.71	2.41	4th	.448	.001*
	Data services funding/pricing model	2.31	4.37	2.06	7th	.458	.001*
	Spatial datasets dissemination and use	3.86	5.47	1.61	12th	.284	.043*

 Significant variables
  ranked gaps
  The 3 most ranked gaps

* Assessment parameters significance @ 95% confidence level

The perceptions of the levels of interactions for the 51 respondents' as shown in Table 6.6 were found to be significant for most parameters, suggesting that, most participating agencies indicated their wish for considerable improvement in the present levels of integration and did so quite consistently. However, the strength of this perception was generally low or moderate as shown through the correlation coefficients. The exemptions are parameters for: social considerations, communication between agencies, capacity building, dispute resolutions and data collection format that were considered not significant.

A closer observation of these variables (those not significant), however, revealed that they are the ones with the most observed gaps – when assessed using only the total mean difference (Table 6.6). Yet, the t-test indicated that the observed gaps are due to chance variation. It was important to probe further why this was the case. A closer

assessment of dispute resolution, the highest observed gap for example, showed that the perceptions of optimal integration varied considerably between agencies across different levels of government, as opposed to across land administration functions.

This further confirms the integrity of the combined assessment and analytical tools in assisting to determine variations across and between different levels of governments. It also explains the implications for housing production. For example, in terms of what is desired, when aggregated along the integration aspects, respondents consistently wanted a significant improvement in the level of inter-agency integration. In particular, participants wanted improvement in the areas of (data infrastructure) – funding and pricing, storage and maintenance of data; (land administration processes) – capacity building, organisational structure, resources of the agencies; (land management policy) – economic and environmental policy considerations.

The implication of this for housing production is that there is a need for more engagement to facilitate funding of data, storage and maintenance. This level of funding, to a larger degree as explained by some respondents, determines the level to which data could be made available for stakeholders in analysing housing needs. This affects the quality of decisions and feedback from the other data-users apart from government agencies. The respondents' desirability for improvement also suggest that the present level of capacity building, organisational structure and the resources of the agencies are not sufficient to develop good institutional and administration base for a linked land administration processes. This is considered to have serious implications for the determination of ownership and development rights, with the attendant negative implications for the organisation of housing. Respondents' desire for economic and environmental policy considerations also suggested that sustainability objectives should be paramount to achieving desirable housing outcomes. Overall, it is logical to ask: What are the implications for housing outcomes with these differing patterns of inter-agency integration that is observed in Australia?

6.3.8 Australia case summary

Taken as a whole, it should be noted that the organisation of land in Australia is highly top-down and regulated. What this means is that developers and respective builders actually have limited or no options for organisation of housing outside the formal land

market sector. Notwithstanding this structured systems, it was observed through the study that there were a lot of inefficiencies in the system, and that these were closely linked with the levels of inter-agency interactions. These findings were considered consistent with the previous studies as earlier discussed in the background chapters. It will only be logical therefore to make a case for improved integration as a way to improve efficiency in inter-agency integration (details in Chapter 7).

The federal government, through COAG, are encouraging initiatives to develop collaborative framework, through national objectives and criteria for future strategic planning and growth of capital cities. Principal among these is to plan for sequenced and evidence-based land release to, appropriately, achieve a balance of *infill* and *greenfields* development. Equally important is the desire to integrate agencies across functions and between levels of government: including land-use and transport planning; economic and infrastructure development; environmental assessment and urban development.

At the state levels, the state planning department (DPCD) in Victoria was recognised as playing a central role in mediating policy formulation and implementation between federal and local councils. Most of these essentially centred on coordinating the activities of other agencies to develop strategic planning for the state in order to facilitate land delivery for housing production. As revealed through these research findings, achieving these objectives was challenged by the limitations of an integrated approach to seek common goal. This was found to be consistent with the research problem. At the local level, the local councils were directly and indirectly involved, at different scales, in the statutory and regulatory planning functions with varying levels of integration with the other levels of government. This was also found to essentially impact land delivery for housing.

As a recap, it was observed that:

- The present level of integration regarding policy consideration was more of *cooperation* among agencies with little of *coordination* and less of *collaboration*.
- There was limited integration of functions among agencies for implementing current initiatives.
- Where there were found to be some level of agreement on a broad strategy, this was not reflected in specific planning measures through development assessment to

integrate land use planning policies.

- A strong information base was required to better understand growth and change in Australia's cities, to identify issues and priorities for action, and to inform the best paths for public and private investment. This was also consistent with the findings of the department of infrastructure as contained in the report: '*Our Cities, Our Future: A national urban policy for a productive, sustainable and liveable future*'.
- There was not just the perception, but the realities of unequal power relations among the different levels of governments. The feeling of being *unequally-yoked* is greatly felt by the local councils, while the state has the feeling of '*constitutional encroachment*' from the Commonwealth.
- Within the scope of specific projects, key decision making were not always identified in the vertical and horizontal organisational structure.
- The public was not sufficiently nor adequately informed of governments' policy directions. What was generally considered as *consultation* was found to be essentially *informing*.
- Privacy and confidentiality issues ran through the entire discussions of data sharing and usage. It was observed that there were challenges to overcome legal rules guiding privacy and copyright.
- Overall, in terms of what levels of inter-agency integration desired, participants wanted improvement in the areas of data infrastructure to include: funding and pricing, storage and maintenance of data. In the areas of land administration, processes to include: capacity building, organisational structure, resources of the agencies. In the area of land management policy, to include: economic and environmental policy considerations.

6.4 Nigeria: Case study analysis

This section analyses the levels of land administration integration in the context of housing production in Nigeria. It starts with a brief discussion of Nigeria to provide insights into the context. It proceeds to the assessment of the relationships between levels of governments on land administration and housing development using the inter-agency assessment tool.

6.4.1 Profile of Nigeria

- *Geography and Population*



Table 6.7 Profile of Nigeria

Land Area	923,768 km ²
Population	170,123,740 (July 2012 est.)
Language	English, Hausa, Yoruba, Igbo, Fulani, and over 500 additional indigenous languages.
Currency	Naira (₦)
Gross Domestic Product	\$414.5 billion (2011 est.)
Gross Domestic Product Per capital (PPP)	\$2,600 (2011 est)

(Source:

<https://www.cia.gov/library/publications/the-world-factbook/geos/ni.html>)

Figure 6.14 – Map of Nigeria within Africa and in the global context

Source: http://en.wikipedia.org/wiki/File:Location_Nigeria_AU_Africa.svg

Nigeria (Figure 6.14), located in West Africa, occupies a land area of 923,766km² (Table 6.7) and a population of 140.2million (2006 census). Nigeria is the most populated country in Africa. Besides the rapid increase in the total population, there has been a rapid rate of urbanisation over the years. Rapid urbanisation results in rapid construction and the encroachment of *greenfield* within and outside the urban centres to satisfy the land needs of the ever increasing population. The apparent lack of land management presents a major challenge to land delivery and the attendant implications for residential development.

- *System of Government in Nigeria*

The Federal Republic of Nigeria consists of 36 states and a Federal Capital Territory. Each state is further divided into Local Government Areas (LGAs). There are presently 774 Local Government Areas. The constitution determines intergovernmental relations, and the role of the federal, states and local governments. Within this structure, each level of government is expected to make its own policy decisions unless there is an overriding national imperative for a single nationally consistent policy, like land policy through nationalisation of land. The long period of military rule and the legacy of unitary command structure has significantly distorted and undermined how the constitution is enforced.

- *Economy*

Resource control among the different levels of jurisdictions is one of the greatest contestable issues that have made cooperation between the different levels of government very challenging. As an example, federal policies to implement Land Use Act of 1978, for better management of land and the growth of cities has often pitched the state against the federal government on several instances.

The following sections discuss the role of each level of governments in land-use planning, housing, and urban development.

6.4.2 Land delivery and the organisation of housing production in Nigeria

- *Jurisdictional involvement in land management and housing production: federal government*

Land administration and housing production in Nigeria are closely linked with government policies on land tenure and land use. This is also considered to affect the way National Housing Policy is formulated. There is a growing concern and interest at a national level to address inadequate provision of housing for the poor majority. There are now expectations to encourage the development of affordable housing through the National Housing Policy. Table 6.8 presents a summary of federal government past and present involvement in housing and urban development in Nigeria.

Table 6.8 Summary of Federal Government of Nigeria's involvement in housing and urban development since 1900

1900 –1960	The provision of quarters for expatriate staff and for selected indigenous staff in specialised occupation like Railways and the Police. This initial effort marked the genesis of Government Residential Areas (GRA) in Nigeria.
1928	The creation of the Lagos Executive Development Board (LEDB) in response to Bubonic Plague in Lagos
1956	Nigerian Building Society was established to provide mortgage loans
1971	National Council on Housing was established which consists of all state commissioners responsible for housing
1972	Establishment of National Housing Programme
	The establishment of Staff Housing Board to replace and perform the functions of African Staff Housing Scheme for granting loans to civil servants.
1973	The Federal Housing Authority (FHA) was also created to coordinate a nationwide housing programme
1975	Third National Development Plan (1975-1980), Government accepted Housing as part of its social responsibility and participate actively in the provision of housing for all income groups.
1976	The Federal Mortgage Bank of Nigeria (FMBN) was created to replace the Nigerian Building Society for the purpose of granting loans to the public

1980	Fourth National Development Plan (1980-85) National public housing programme was designed for the low-income earners
1991	Integrated National Housing Policy in response to astronomical rise in the cost of housing construction
1992	National Housing Fund (NHF) was established with a two-tier institutional structure: Primary Mortgage Institutions (PMIs) as primary lenders; and FMBN as the apex institution. Urban and Regional Planning Laws as the first comprehensive post colonial planning legislation in Nigeria
2004	National Housing Policy of 2004 the provision of suitable and adequate shelter for all citizens
2011	National Housing Policy of 2011 – In progress

Source: Compiled from different sources (Agbola, 2005; Aribigbola and Ayeniyo, 2012; Mabogunje, 2009; Omirin, 1992; Onibokun, 2003)

As shown in Table 6.8, land delivery and housing production have been greatly influenced by the establishment of different government agencies at different stages in the development of the country. These agencies are established, most often, to implement government land and housing policies. As initiated by the Federal Government, the National Housing Policy now provides the platform to work with state and local governments, the private sector and communities. This is expected to help provide more affordable housing for the Nigerian people especially the urban poor.

- *Land management and housing development: state government involvement*

The state governments are constitutionally responsible for land registration, land valuation land-use planning and land development. Lagos, the case study (Figure 6.15), controls registration, valuation, use and development of all lands within its jurisdiction.

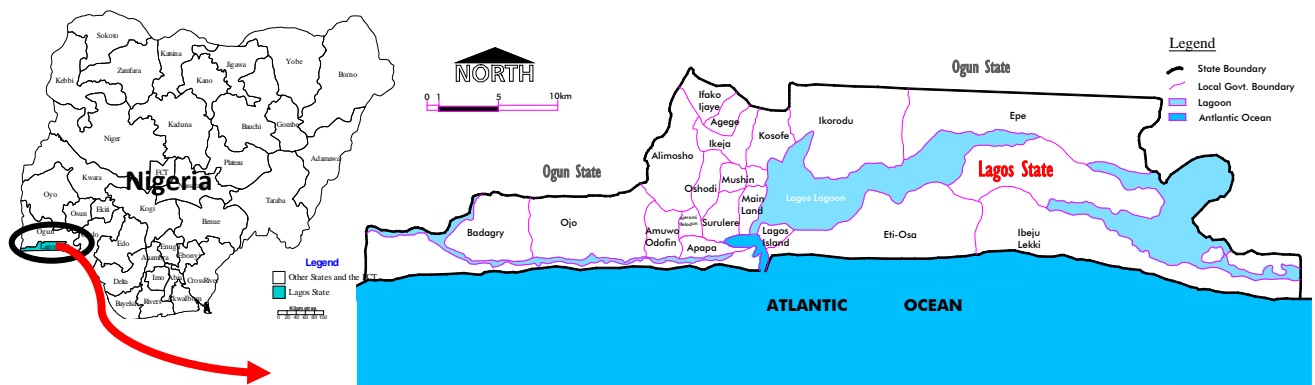


Figure 6.15 – Lagos state

Source: *Lagos State Mega City Plan, 2006*

Lagos is located at the south-west corner of Nigeria (Figure 6.15). Lagos is Nigeria's most compact state in terms of population concentration. Significant proportions of land in Lagos are predominantly wetland and are remotely detached by creeks and lagoons. Water body accounts for 29.8% of the total 3577.28km² state coverage (Surveyor General Office, Lagos). Like other states in Nigeria, Lagos is vested the power to

control land administration functions: land tenure, valuation and taxation, use and development. These functions are split among many agencies and departments. This arrangement presents a lot of challenges in dealing appropriately with issues that cut across many agencies. Of significant importance is the lack of a coordinating agency to oversee the collection, dissemination and use of data in an integrated manner to make informed decisions.

Responding to these challenges, in the domain of data infrastructure, the current administration in the state initiated and built the Lagos GIS Enterprise in 2011. There has been long standing but ongoing initiatives to negotiate agreement to, effectively, use the infrastructure. There is also an ongoing initiative to develop Geo-spatial policy to progress this.

In the domain of land-use planning and housing, some of the recent initiatives included the Lagos Mega City Plan 2006, Model City Plans, Lagos GIS Enterprise Project, a tool which is expected to involve working across government agencies. Table 6.9 outlines key planning policies and strategies that have impacted land management and influence housing production, growth and the overall development of Lagos Metropolitan area since independence in 1960.

Table 6.9 Lagos Metropolitan Strategic Planning History

1972	Town Planning administration became a state function The establishment of Lagos State Development and Property Corporation (LSDPC)
1980	Master Plan for Metropolitan Lagos 1980 - 2000
1981	New Towns Development Authority (NTDA) to provide an enabling environment for private initiative in housing provision.
1995	Lagos State Urban and Regional Planning Laws to guide land management in Lagos State
2004	Lagos State Metropolitan Infrastructure Upgrading Project
2005	Enactment of law establishing Model City development Authorities: e.g. Ikoyi-VI Model City Plan
2006	Development of Lagos Mega City Plan in collaboration with the Federal Government of Nigeria
2007	Urban regeneration: Lagos Island Infrastructure Upgrading, Regional and District markets redevelopments, Isale Igangan redevelopment.
2008	Establishment and recovery of <i>Right of Way</i> alignment for existing and proposed road development and the approval of private layouts and estates developers' schemes Compilation and publication of Distressed buildings.
2010	Lagos State Urban and Regional Planning and Development (URPD) Law 2010
2011	Lagos State GIS Enterprise as part of efforts to smoothen the process of land administration in Lagos State

Sources: Ministry of Physical Planning and Urban development 2007-2011

In the area of housing production, and in line with the past and present National Housing Policies, the state government had been involved in the following broad roles:

- Formulation and implementation of state-related housing policies and strategies
- Overseeing the activities of the state's housing development corporation (where applicable)
- Proposing and implementing the housing program and initiatives of the state.

Notwithstanding this level of institutional involvement, it is believed that more than 80% of new inclusion to housing stock are still from the private autonomous builders (Egbu et al., 2008).

- *Land management and housing development: local government involvement*

Land-use planning generally occurs at the state and local government levels in Lagos state. The state focuses on strategic planning while local government focuses on statutory planning. However, the strategic component of local planning, which is essentially a planning scheme and local plan preparation are prepared at the state government level. With this arrangement, strategic and statutory planning functions are organised and implemented at the state level, by appointing and deploying officers to the District and Local Planning Offices. In effect, the direct role of local government in land-use management and housing production is considered insignificant.

6.4.3 Land Administration functions and the organisation of housing production

The link between land delivery and the organisation of housing production are briefly discussed along the land administration functions of: land tenure, land value, land use and land development.

- *Land tenure and registration of title*

Land tenure system, in Nigeria, is governed by the National Land Policy, which is directly linked with the 1978 Land Use Act. Through this Act, land in all the states of Nigeria is vested in the governor of each respective state. In practice, this arrangement runs parallel with the existing customary land holding. Consequently, access to land for housing production in Nigerian major cities at present is available through two sources, formal (Lagos State Government) and informal (traditional land-owners and their representatives). The appropriation of land by the state notwithstanding, the physical

control and possession of land, arguably, remains with the traditional family land-holders.

This conflicting but parallel ownership structure is considered to promote tension between the traditional land holding and the state appropriation through the provisions of the Act. The implications of these are: first, it encourages multiple sales of the same land to different buyers in the absence of titling and appropriate registration systems. This has resulted in bottlenecks and uncertainties in land transactions, as well as, the overall transaction cost in acquiring land for urban development. Second, it precluded builders to seek appropriate development permit. This also has significantly contributed to the prevailing housing production means and the emerging urban form that is largely autonomous, informal and unstructured.

- *Land valuation, taxes and charges*

In the exercise of the control of land, post-hoc appropriation by the state governments, one of the common tools used is compulsory acquisition. One of the associated problems of using this means is the determination of compensation for people who are dispossessed of their lands. The current process adopted in determining land value is, however, challenging and contestable, because the procedure is generally considered being subjective.

Government collection of taxes and charges are essentially limited to the formal land sector. Parts of these charges include: payment for the processing and issuance of the Certificate of Occupancy; fees associated with Governor Consent for transference of land. Other fees are linked with the provision of infrastructures like roads, drainage and electricity through the site and services schemes.

- *Land use planning and development assessment*

The federal government is not directly involved in land-use planning but makes policies and legislations that impact directly or indirectly in this regard. These include: Land use Act, Urban and Regional Planning Decree (1992) and the National Development Plans prepared between the 1960s and 1980s to provide a general guide and direction of development. The actual translation of these to land-use planning is the responsibility of the state governments.

The limitation of state government to effectively control land ownership, notwithstanding land appropriation through the land use act, have prevented any meaningful strategic planning activities. What are obtainable are pockets of ad hoc measures in this regard. The lack of strategic land use planning and contentious land holding and ownership strategies provide a clear recipe for chaotic statutory planning and a tortuous planning permit process.

- *Planning and building permit processes*

Planning and building approval processes in Nigeria generally, and Lagos (Figure 6.16) in particular are determined by several factors; the main determinant being the channel or means by which land is procured for housing development. The cyclical nature of the process is an expression of its complexity. The involvement of the referral authorities is not even included in the loop. Parts of the challenges include:

- i). Obtaining title documents that are usually a prerequisite for planning application, multiple official charges, and bureaucratic encumbrances among others.
- ii). The set of rules, requirements and regulations as well as standards that must be adhered to before planning approval is granted.
- iii). No consideration for local peculiarity especially regarding location and the prevailing tenure practices. Most people in the informal sector found this rather offensive and an undue imposition.

As a result of these, the autonomous (informal) builders are burdened with additional responsibilities, yet they have the least capacity to cope; most especially the requirement to provide documentation that is mostly not in existence. The key generic stages and estimated time for securing land and development rights in Nigerian cities,



Figure 6.16 – The procedure for the grant of development permit in Lagos
Source: LASPPDA (2010)

was outlined by Egbu et al (2008). The tortuous processes indicate that a complete process involves 32 stages to secure development approval by any individual developer/builder that procures land through the traditional land holding families. The implications are: unprecedented level of informal and slum development resulting to overwhelming organic urban form. However, for a titled site and services site through land services of lands and survey departments, the stages are reduced to only 13 stages (Stages 19-32).

Thus, for the autonomous builder, a considerable level of expense is incurred in getting through the process. These are great disincentives and most autonomous builders (about 80% of the population) are not willing to go through this.

- *Land and infrastructure development*

In Lagos state, some of the acquired lands by the state government are transferred to the New Town Development Authority (NTDA)¹¹ to be laid out for *Site and Services Schemes*. Site and Services Schemes involve the design, approval of both broad layout plans and the *Approval Order* guided by the stipulated specifications as considered appropriate by the Lagos State Physical Planning and Development Authority (LASPPDA)¹².

In principle, after the layout plans have been approved, infrastructure like roads, drainage and electricity are supposed to be provided by NTDA. In reality, the facilities are provided in varying degrees depending on the location of the schemes relative to the Central Business District (Lagos and Victoria Islands). The costs of providing the infrastructure are recovered from the prospective developers since these are included in the actual cost of making good the land (capital contributions).

¹¹ NTDA is a Lagos State government agency responsible for the transformation of some of the acquired land to the development of residential schemes. Other major functions of the authority are: develop, hold, manage, sell, lease, or to let persons or companies, landed properties...within Lagos.'

¹² LASPPDA is a parastatal of the Lagos Ministry of Physical Planning and Urban Development. The major functions of the authority are; the processing and issuance of building development permits, monitoring compliance with approved and operative physical development plans, various approval orders and regulations.

Overall, different construction sectors and corresponding organisational structures emerged from the study area. These are: private, quasi-institutional, public and autonomous developers. The organisational structures are classified as organised and autonomous sectors. These relate to the structure and organisation of developers¹³ as well as the purpose of production. This is closely aligned with the governments' policy structure, in terms of support for housing production, as explained through the provider and enabling paradigm (Chapter 2).

To put it briefly, as observed in the study area, housing development is highly unstructured in Nigeria. There were problems in preparing strategic planning to guide and control land use, with serious implications for the types of developers that could engage in housing development. This was observed to have an effect on the overall housing output and urban structure. Second, there were associated problems of determining land value by government, either for the purpose of tax or for determining compensation for compulsory land acquisition. Overall, the current national land policy and corresponding land administration regime in each state presents a very challenging institutional arrangement for land delivery in Nigeria. These are important contextual consideration for land management and housing production. The next section discusses inter-agency integration by mapping the interdependence of agencies' interaction.

6.4.4 Mapping Interdependence of agencies' interactions: Social Network Analysis

With the use of Social Network Analysis (SNA) the inter-agency relationships was mapped graphically. Weighted link (between agencies) provided opportunities to derive many patterns of interactions: one-to-one relationship, one-to-many relationships and many-to-many relationships. This multi-layered interaction is illustrated in Figure 6.17.

¹³ *These are people who invest in and develop the urban or suburban potentialities of real estate, especially by subdividing the land into lots. They might also be involved in the actual construction and sale of houses (organised sector of housing production). It is contextually synonymous with builder in most informal settlements that are predominantly autonomous self-built in developing countries depending on the scale and motive of construction*

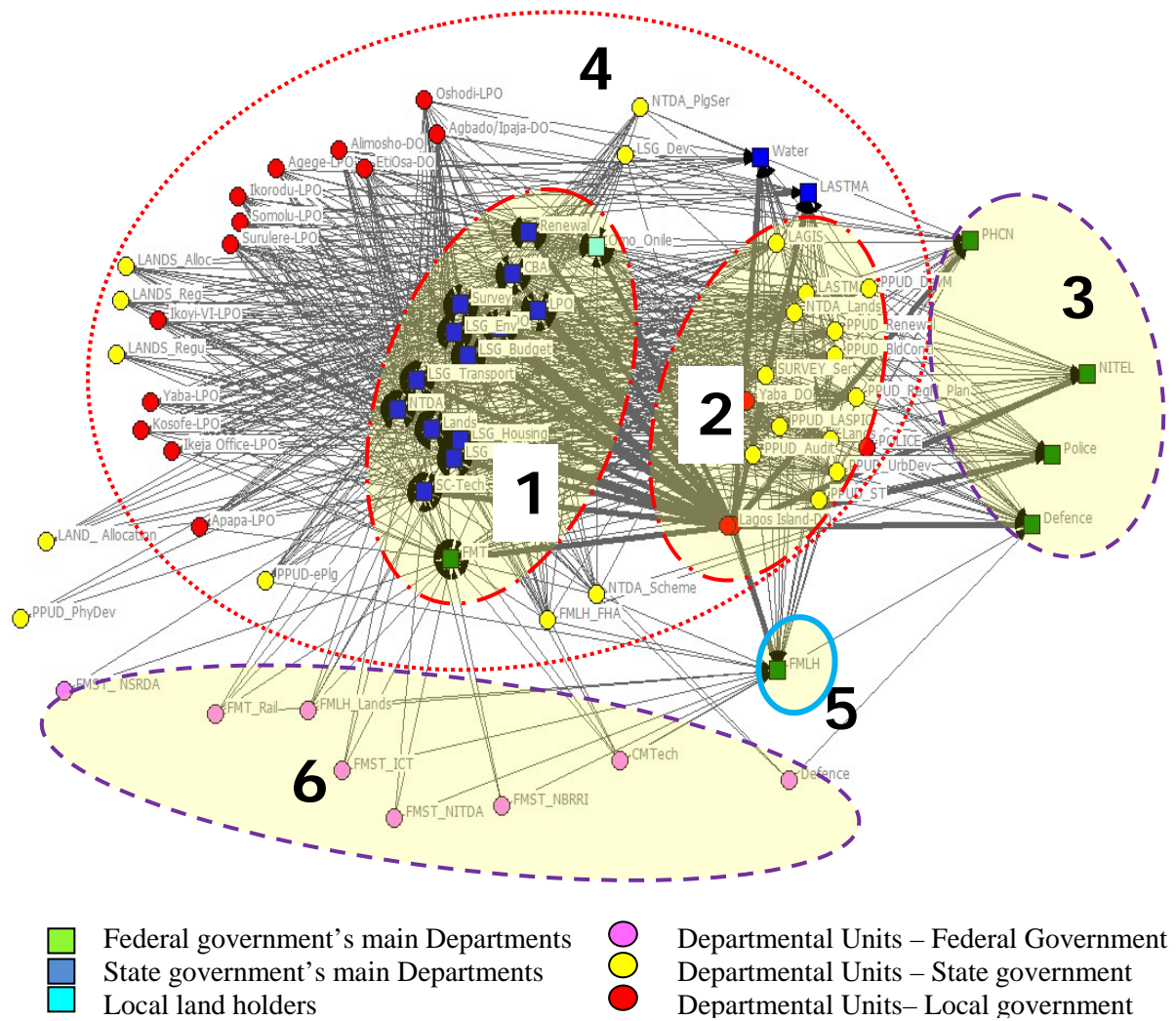


Figure 6.17 – SNA representation of agencies' interdependence of interactions

The pattern of inter-agency interactions as illustrated in Figure 6.17 appears to be *multi-nuclei*. One of the nuclei shows the clustering of some states ministries and departments (area labelled 1). This cluster is composed of mostly the State Government Ministries: Lagos State Ministry of Physical Planning and Urban Development, Ministry of Transport, Ministry of Environment, Science and Technology, as well as the New Town Development Authority. This pattern is a reflection of the interactions between the dominant agencies that had the most significant role in land administration for housing and urban development and the local government (area labelled 4).

The second nucleus (area labelled 2) is composed mostly of the units within the state ministries that have very strong links with the Federal Ministry of Lands and Housing. The referral agencies (area labelled 3), are not well bounded with the mainstream land

and housing agencies as well as the Planning Districts and local planning areas (area labelled 4) given the relative distance.

The line thickness between clusters (Area labelled 1, 2, and 3) indicates stronger strength of interaction between the linked agencies and Lagos Island District Office as the focal point. The importance of Lagos Island as the commercial centre of Lagos could possibly explain this observed pattern.

As shown in Figure 6.17, the Federal Ministry of Lands and Housing (area labelled 5) is the central node connecting most of the agencies in the three levels of governments. What this means is that the Federal Ministry of Lands and Housing was recognised as playing a central role in mediating policy formulation and implementation between federal and state governments. Most importantly are its roles in national land-use and housing policy. It has close ties with the state government organisations and agencies and the other federal agencies that are clustered outside the main arena (area labelled 6).

6.4.5 Assessment of the present levels of inter-agency integration

Following from a brief discussion of land administration and the organisation of housing in Nigeria, this section undertakes a closer assessment of the implications of the administration of land by seeking improved understanding of the inter-agency interaction and the impacts of these on land delivery for housing.

- *Planning policy objectives*

There are indications to suggest that planning policy objectives mostly impact the activities of the agencies studied. As shown in Figure 6.18, considerations for better management of growth, better transportation links and the desire for a more prosperous city appear very significant to the agencies studied.

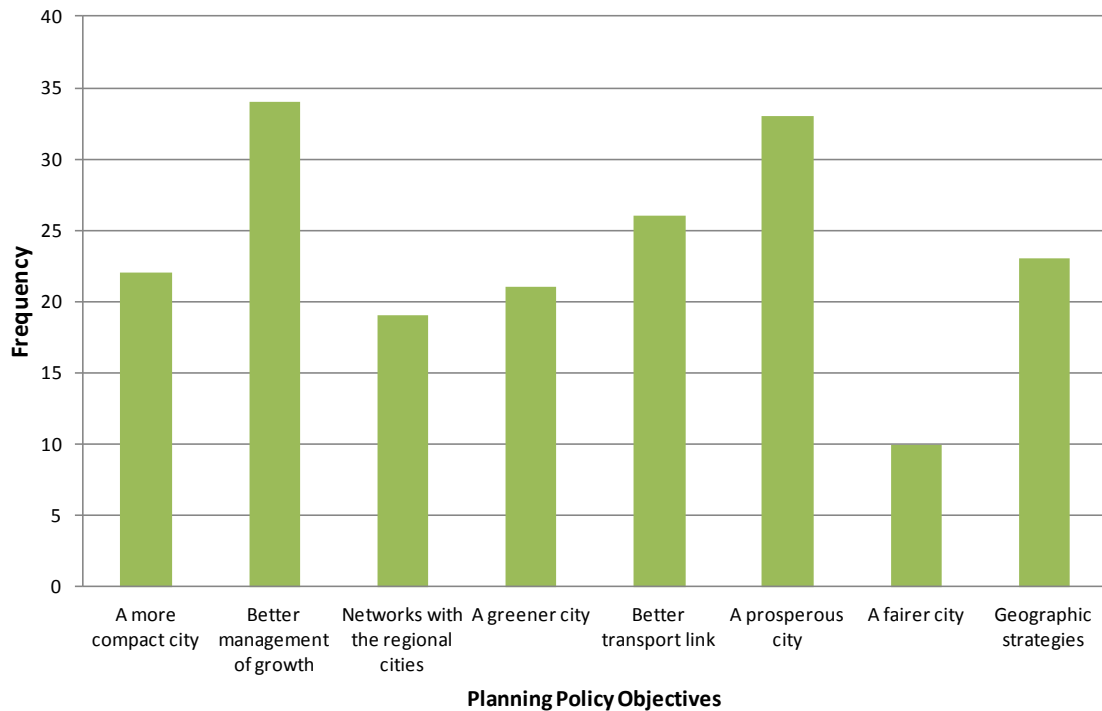


Figure 6.18 – Assessment of planning policy objectives – Nigeria

The incidence of rapid urbanisation and the attendant increasing urban population does not correspond to land release or better governance. Consideration for better management of growth thus remained significantly important to most land and housing related agencies in Nigeria particularly in Lagos. Having considered what drives agencies' policy objectives, the following discussions focus on determining the present levels of inter-agency integration.

- *Observed levels of inter-agency integration*

The discussion here is focused on the combined results from the online survey and the perspective of the interviewed participants. The responses for each of the assessment parameters were cumulated and tabulated into percentages. A frequency distribution as presented in Table 6.10 shows that despite attesting to giving considerable level of priority to economic, environmental and social policy considerations, the observed levels of inter-agency interaction in this regard is still generally low. When these are disaggregated, there are however, noticeable variations across land administration agencies and between different levels of government.

Table 6.10 Observed levels of inter-agency integration: overall frequency distribution

Assessment Parameters	No known Integration (%)	Cooperation		Coordination		Collaboration	
		Level 1 (%)	Level 2 (%)	Level 3 (%)	Level 4 (%)	Level 5 (%)	Level 6 (%)
Economic policy considerations	24.5	11.3	22.6	15.1	3.8	3.8	18.9
Environmental policy considerations	34.0	11.3	5.7	9.4	11.3	7.5	20.8
Social policy considerations	1.9	37.7	15.1	7.5	5.7	13.2	18.9
Communication between agencies	0.0	20.8	22.6	34.0	13.2	0.0	9.4
Organisational structure	0.0	39.6	24.5	1.9	26.4	5.7	1.9
Resources of the agencies	22.6	18.9	9.4	5.7	18.9	17.0	7.5
Commitments and responsibilities	1.9	17.0	41.5	1.9	17.0	17.0	3.8
Capacity building	5.7	39.6	20.8	7.5	22.6	3.8	0.0
Dispute resolutions	37.7	18.9	3.8	13.2	22.6	1.9	1.9
Public participation	0.0	49.1	39.6	1.9	7.5	0.0	1.9
Data creation: collection format	52.8	0.0	52.8	7.5	1.9	1.9	0.0
Data coordination and information flow	30.2	15.1	32.1	20.8	1.9	0.0	0.0
Storage and maintenance of data	49.1	22.6	24.5	3.8	0.0	0.0	0.0
Technology and technical issues	39.6	3.8	13.2	7.5	26.4	9.4	0.0
Data services funding/pricing model	52.8	11.3	1.9	1.9	11.3	20.8	0.0
Spatial datasets dissemination and use	13.2	26.4	17.0	34.0	7.5	1.9	0.0

*Highest percentage per assessment parameter

As noted by one of the respondents in Lagos:

...Lagos State Land Services and Allocation Department under the Governor's Office... is the agency in charge of implementation and formulation of land policy in the state. The services and activities of this agency is supposed to be collaborative and mutually dependent with the service of the Lagos state Ministry of Physical Planning and Urban Development, [with] the parent body of the Physical Development Audit Department. Further, the output of their activities is supposed to have direct impact on housing provision and administration by the relevant organizations and stakeholders within the state. Ironically as at present, there is neither significant collaboration nor coordination of activities and process between these Government agencies and this has its toll on land/housing management and provision in the state'

The major challenges as observed through the insights offered by the research participants was that the present levels of integration regarding policy considerations were much of cooperation among agencies but with little of coordination, and less of formal rules and resources committed to achieving this.

When these were set against the measurement variables, it revealed that willingness to align economic consideration was limited between agencies, while environmental

considerations were mostly restricted to consultation among agencies. The findings also showed that defined social consideration existed between agencies but that the strategies to pursue this were not consistent.

- *Assessment of land administration process parameters*

When parameters for land administration process: communication between agencies; organisational structure; resources of the agencies; commitments and responsibilities; capacity building; dispute resolutions; and public participation were considered, the observed pattern was more of lack of integration and little of cooperation. The only exception was that there was a noticeable structured communication flow between processes as attested to by 34% of the respondents. This, however, was arguably not sufficient for efficient integration. In addition, regarding dispute resolution, majority (37.7%) of the agencies were of the view that there were no known dispute resolution strategies; where there was known strategy, responsibility for conflict management were confined and clearly assigned only internally within organisations.

Regarding public input into agencies function, it was observed that the dominant form of engaging the public was mostly by informing them of government policy direction with little contribution or feedback from the public.

- *Assessment of data infrastructure parameters*

Considering the assessment of data infrastructure parameters: data creation and collection format; data coordination and information flow; storage and maintenance of data; technology and technical issues; data services funding/pricing model; spatial datasets dissemination and use; the following were observed as discussed below.

Data creation and collection formatting were driven by some independent strategies to create data for agencies' internal use, as assessed by 52.8% of the respondents. This suggests that the format for data collection is structured to satisfy internal use. It also means that that there were no known data formatting standards or template for data collection.

In terms of data coordination and information flow, 32.1% of respondents noted that specifically required information was shared between agencies just as project-specific information was shared between processes. This suggested that data coordination and

information flow were driven by requirement to share data based on some specific project, outside this, data was confined mostly internally within agencies.

Regarding data storage and maintenance, it was observed that data was stored mostly internally within agency as attested to by 49.1% of the respondents. Some of the respondents (22.6%) were also of the opinion that there were independently shared responsibilities for data storage. Some (24.5%) thought consultations were held among agencies to ensure good quality of stored data to make it amenable when there are needs to share the data.

As attested to by overwhelming majority (52.8%) of the respondents, the funding of data was the primary responsibilities of the individual agency to build appropriate data infrastructure. One of the reasons given by the agencies was that it would be difficult to share data because they incurred huge financial outlay to acquire the data. Given the varied needs and requirement of agencies, ability to agree on data collection and sharing formula was challenging. This was particularly so because there were noticeable fundamental differences in perception and ideologies. As advanced by one of the respondents:

‘...we are all government agencies, ...why should we be paying to share data among ourselves [other agencies]? Since the money is coming from the same source [government], we should be willing to share the data...’

This argument was based on the views that respective agencies were being funded by government, and since government determines the functions of each agency, notwithstanding the overlaps, agencies should be prepared to share data. The argument was not supported by many respondents on the basis that the efforts put into data collection by respective agency vary. Despite these different views, there was consensus about the needs to share data to allow for consistent policy and decision making.

From the perspective of the research participants, datasets dissemination and use were project-specific; this is usually based on the understanding between the custodians of data and the users.

- *The major challenges*

As observed through the preceding assessment, the major challenges as revealed through insights by the research participants included:

- i) lack of direction regarding sharing, costing and funding of data
- ii) weak institutional arrangement to facilitate data discovery, access and disseminations.

The cumulated views of respondents regarding their assessment of the observed levels of inter-agency integration, through the online survey, are illustrated in Figure 6.19.

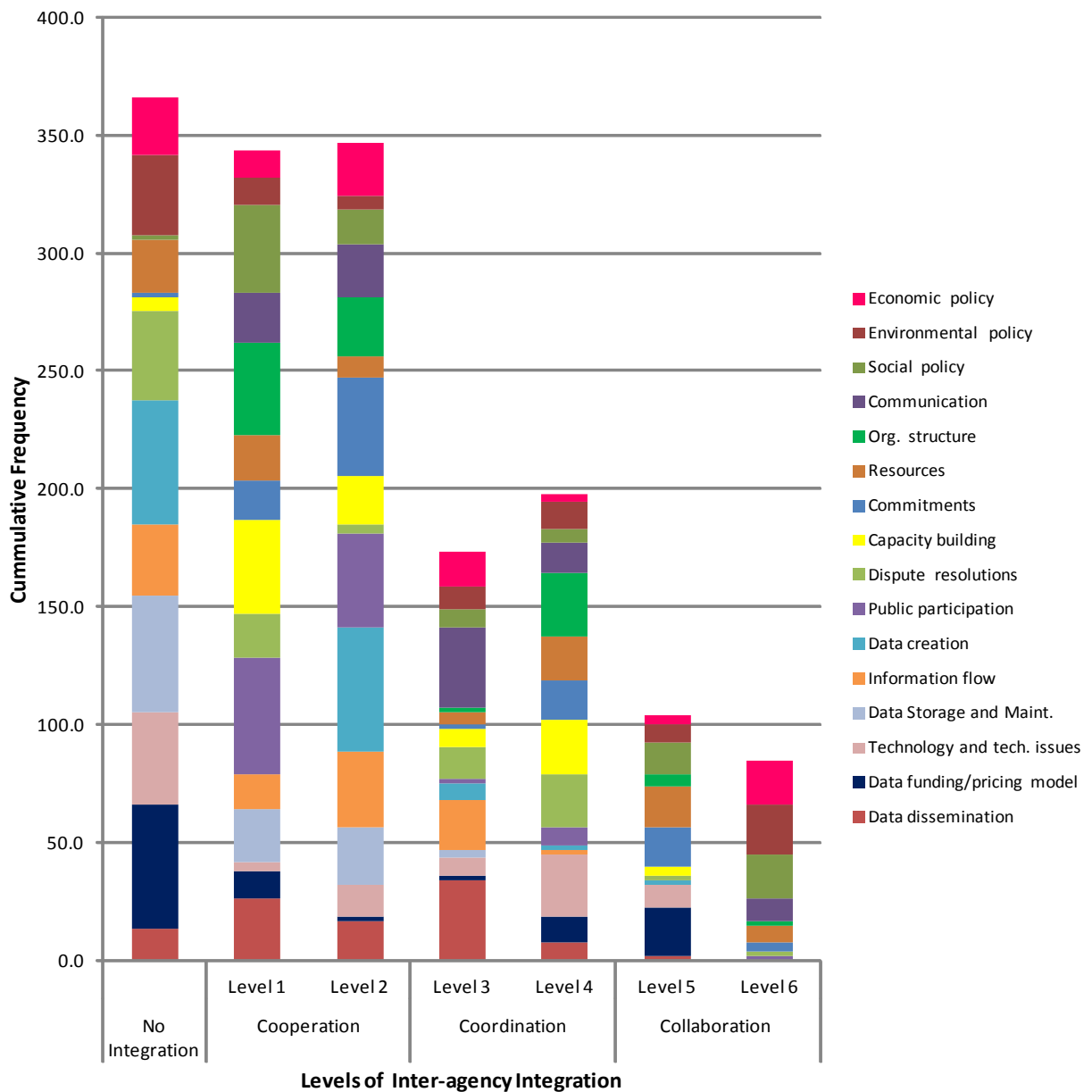


Figure 6.19 – Observed levels of inter-agency integration – Nigeria

In general, as shown in Figure 6.19, there was a significant lack of integration and where there was integration, it was mostly limited to cooperation. This suggests that to a

reasonable extent, there were limited inter-agency interactions in the study area. It also suggests that where there were conscious attempts to interact, it was generally based on few rules and no clearly defined goal.

- ***Observed levels of inter-agency integration across land administration functions***

An assessment of the observed levels of inter-agency interaction as discussed above offered a broad perspective. However, there were noticeable differences across land administration functions. The stratified responses, using the mean distribution values, revealed the differences as shown in Figure 6.20.

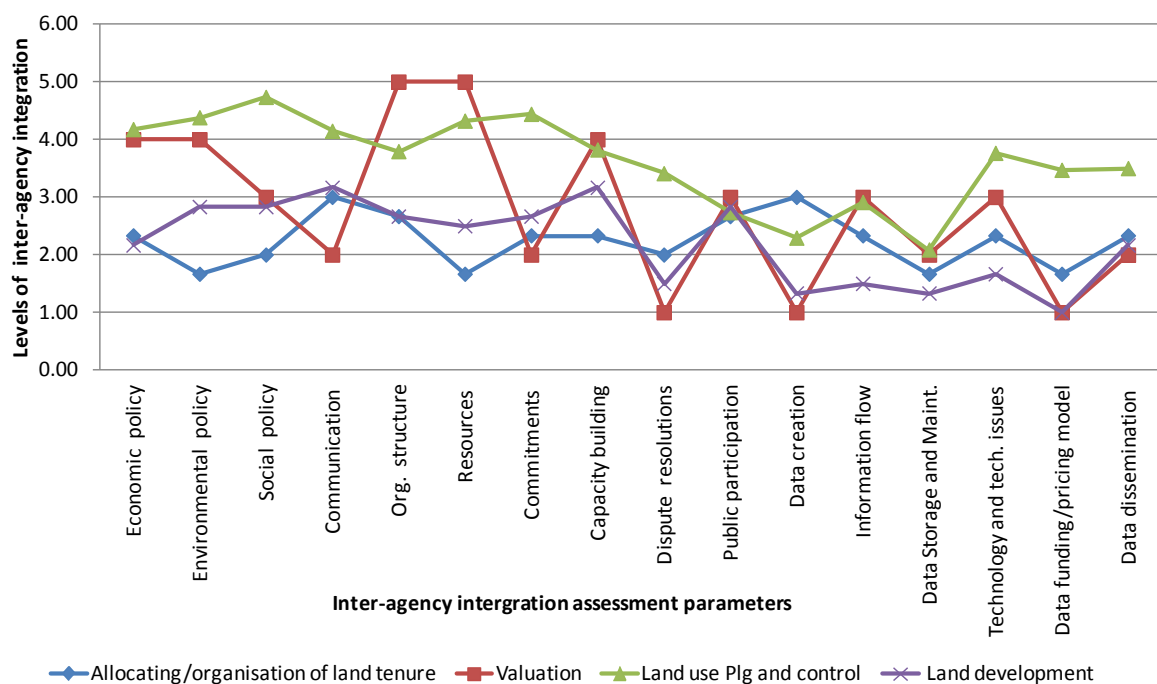


Figure 6.20 – Observed levels of inter-agency integration across land administration functions – Nigeria

As measured through the perception of the respondents, the observed levels of integrations varied substantially across all the land administration functions. It was also noted that the levels of inter-agency interaction across agencies that deal with land development and organisation of tenure/land allocation also varied significantly. There was a major difference in the observed pattern for land-use control and valuation. A logical explanation for this is that, there were similarities in functions and there were some observed overlap of functions between agencies that deal with land tenure and registration, as well as, land development and allocation. Higher variability regarding the level of interactions between land use and planning control, and the valuation

function further confirms the agency silo arrangement in this regard. This level of variation is further clarified through some statistical measures in section 6.4.7.

- **Observed levels of integration between different levels of government**

The observed levels of integration between different levels of government as presented in Figure 6.21 indicated, there was a noticeable variation between the pattern between local governments and those of the state and federal government.

The most likely reason could be the limited engagement of local government as the third and constitutional recognised arm of government in Nigeria. The present structure reflected a complex interplay or responsibility among federal and state government with little input from the local government.

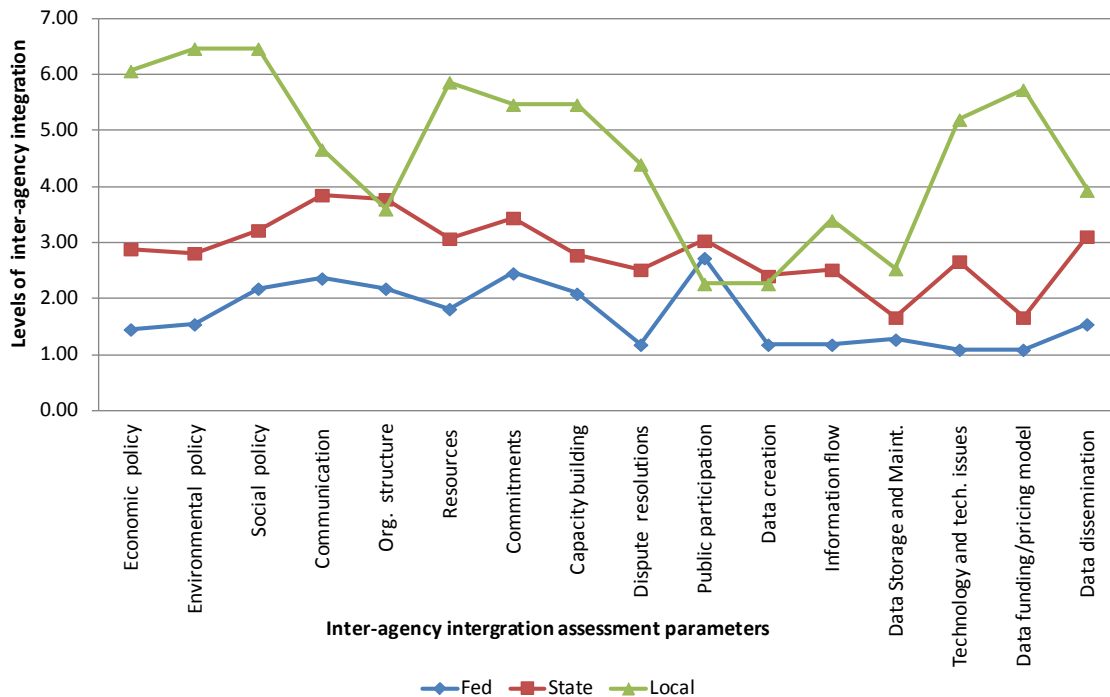


Figure 6.21 – Observed levels of integration between different levels of government – Nigeria

Where the local governments were involved, they seemed to be more committed to inter-agency interaction within the local government level than with the state and federal agencies. This was particularly obvious in the areas of policy considerations and data services.

6.4.6 Assessment of the desired levels of inter-agency integration

It was important to consider what level of interaction is desired among agencies. Figure 6.22 shows that the desired levels cumulatively stood significantly at level 5 (partnership among organisations) and level six (formal merger). This suggested that most agencies desired more collaboration. The insight offered through the structured interview revealed that, agencies preferred to be integrated through incorporation of policies, land administration processes and data infrastructure by reference to legislations. When asked for the justification for this, the common response was that, integration could only be achieved if there are formal rules of engagement given the culture and the level of development in the country.

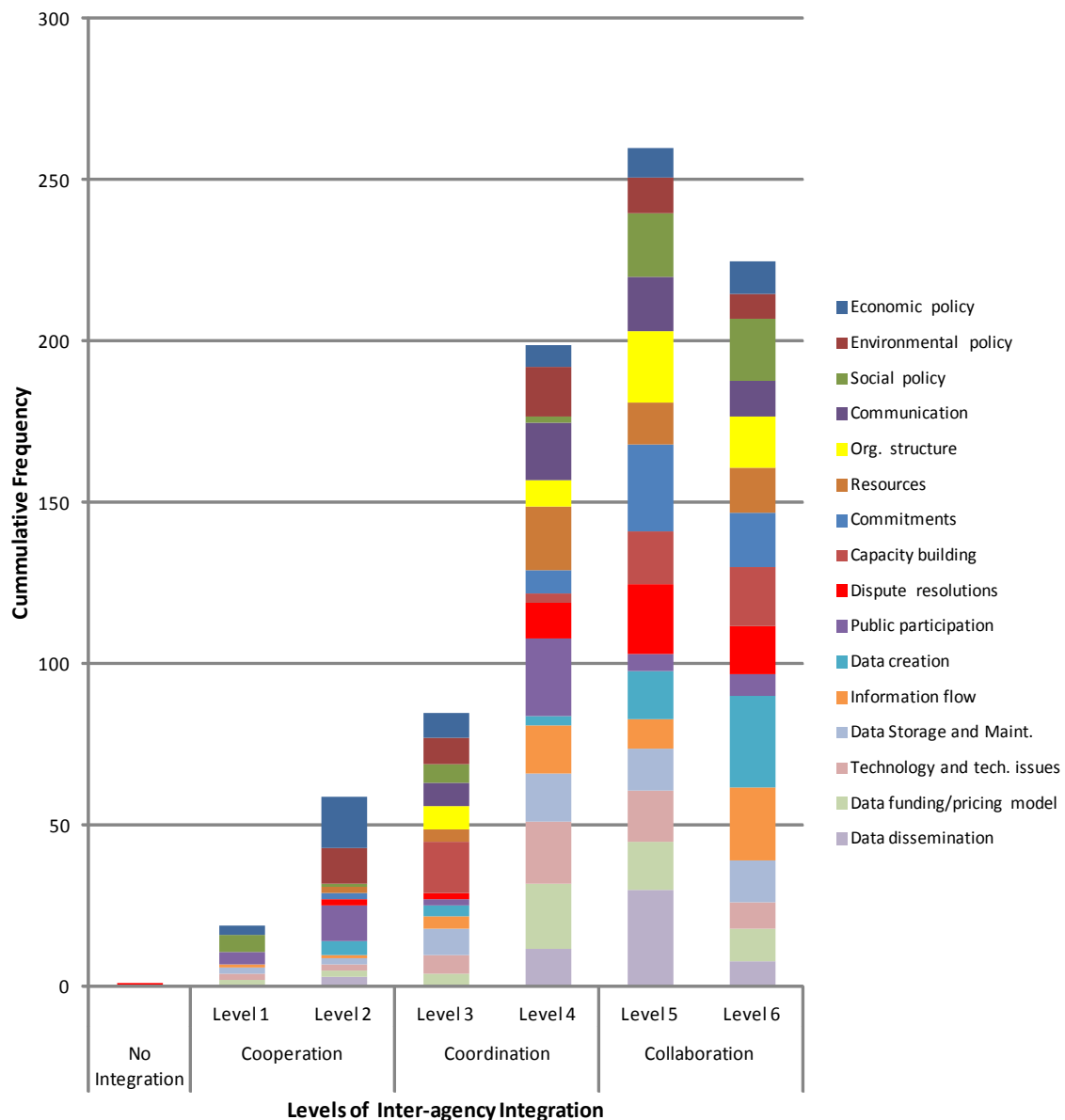


Figure 6.22 – Desired levels of inter-agency integration

In addition, it was also observed that, it was typical of most government organisations in Nigeria to experience a significant paradigm shift as exemplified in previous policy changes and infrastructure development. This attitude perhaps drives the perception of inter-agency interaction to levels 5 and 6 as noted by the respondents. The development from scratch, Lagos GIS enterprise that became operational in 2011 offered a good example.

The extensive outlook and intensive coverage, at the time of delivering the project confirmed the desire to achieve results and to take advantage of the improvement in technology. However, at the time the project was commissioned there was no Geo-spatial policy framework, no standards for data formatting and exchange for its continuous update and management. This, perhaps, is a characteristic of bureaucrats, in most developing countries especially in Nigeria; wanting to prove they are well aligned and abreast of developments as in other parts of the world. However, as it would appear the managerial and technical skills to sustain such infrastructure are still lacking.

Notwithstanding the inherent limitations, one clear message from the preceding assessment was that, participating agencies desired improved interactions across land administration functions and between different levels of governments. This explained the gaps between observed and desired levels of inter-agency interactions.

6.4.7 Determining the gaps: observed and desired levels of inter-agency integration

The present levels of interactions as discussed above are now compared with the expected levels, as indicated by the respondents. This is represented graphically as shown in Figure 6.23. When the overall mean difference for the desired levels of inter-agency integrations were considered, the aggregated data suggest a notable gap between the present levels of integration and what was desired, particularly in the area of data infrastructure.

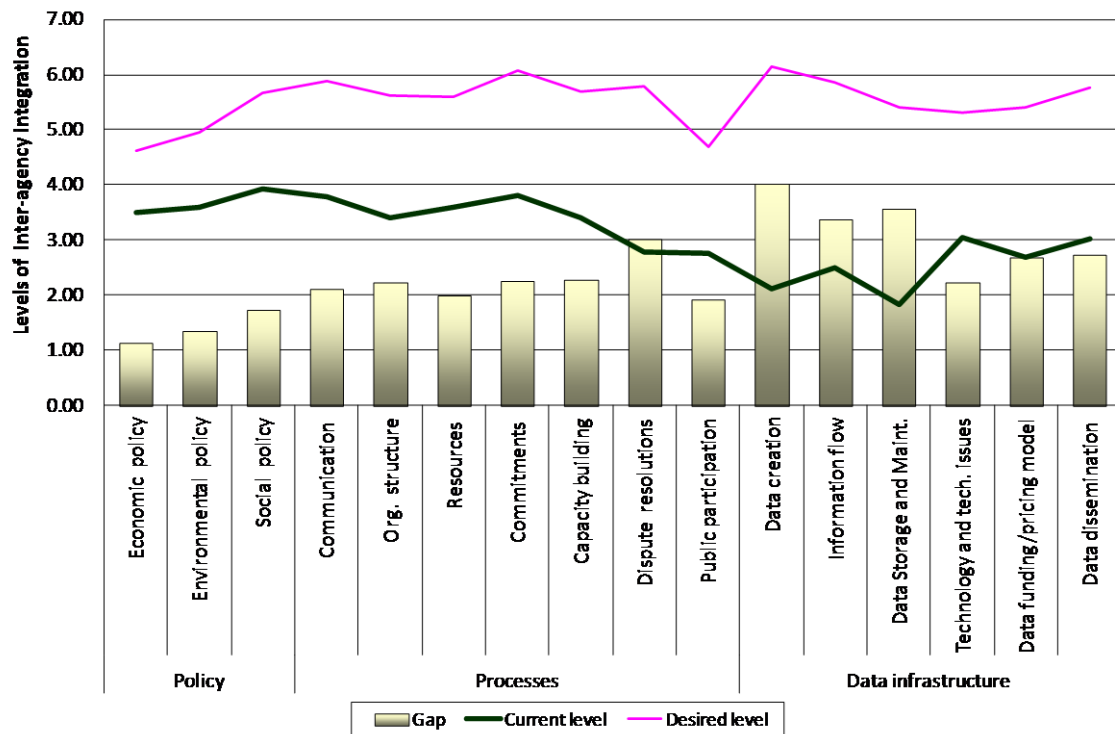





Figure 6.23 – Total mean difference: current and the desired levels of integration

The mean difference in the observed and desired levels of inter-agency interaction was particularly obvious with the parameter of data creation and collection format ranking first (mean gap of 4.02); while data storage and maintenance (mean gap of 3.59), data coordination and information flow (mean gap of 3.38) ranked second and third respectively (Table 6.11).

The results of the gap analysis are summarised in Table 6.12 and the full assessment is provided thereafter. Only the variables that illustrated significant gap variation between the observed and expected ($p < 0.05$) are highlighted (for the paired sample correlation).

Table 6.11 Total means difference (Observed and Expected levels of inter-agency integration) and T-test (Paired Samples Correlations)

Integration Aspects	Assessment Parameters	Total means difference (Descriptive)				Paired Samples Correlations ('current' vs. 'desired')	
		Current level	Desire level	Gap	Rank	Correlation	Level of Sig
Policy	Economic considerations	3.49	4.62	1.13	16th	-0.181	0.194
	Environmental considerations	3.58	4.94	1.36	15th	0.271	0.050*
	Social considerations	3.92	5.66	1.74	14th	0.375	0.006*
Processes	Communication between agencies	3.77	5.89	2.11	11th	0.036	0.798
	Organisational structure	3.40	5.62	2.23	10th	-0.086	0.542
	Resources of the agencies	3.60	5.60	2.00	12th	0.435	0.001*
	Commitments and responsibilities	3.81	6.08	2.26	8th	0.366	0.007*
	Capacity building	3.40	5.68	2.28	7th	0.455	0.001*
	Dispute resolutions	2.77	5.79	3.02	4th	0.380	0.005*
	Public participation	2.75	4.68	1.92	13th	0.011	0.940
Data Infrastructure	Data creation: collection format	2.11	6.13	4.02	1st	-0.034	0.810
	Data coordination and information flow	2.49	5.87	3.38	3rd	0.336	0.014*
	Storage and maintenance of data	1.83	5.40	3.57	2nd	0.242	0.080
	Technology and technical issues	3.06	5.30	2.25	9th	0.109	0.436*
	Data services funding/pricing model	2.70	5.40	2.70	6th	0.232	0.094*
	Spatial datasets dissemination and use	3.02	5.75	2.74	5th	0.168	0.229*

 Significant variables
  ranked gaps
  The 3 most ranked gaps

* Assessment parameters significant @ 95% confidence level (Source: On-line survey, 2011)

As shown in Table 6.11, the observed gaps between the current levels of inter-agency integration and the desired levels were good measures for determining what are important to improve interactions in the future.

A further assessment of the causes for the observed gaps through a closer analysis of the responses from the interviewees was undertaken. In this regard, data creation and collection format; data coordination and information flow; storage and maintenance of data were closely examined. It was discovered that to better manage land, as well as, development and growth of cities, the focus has shifted to a better use of digital datasets. With the shift in focus came the increasing expectations to develop spatial data infrastructure.

As it stands at the moment, there are specific issues regarding data collection, with most land agencies relying heavily on data capture that is essentially manual and analogue. There is however, a growing awareness for data digital data capture, analysis and disseminations. This possibly explains the noticeable gap between what is obtainable now and what is desired.

In a related development, there were issues around data storage and maintenance, most especially that some agencies were attempting to convert paper and analogue data to digital. One of the issues in this regard, concerned the managerial and technical skills and not the technology requirements in terms of hardware or software. From the pattern that emerged, the insight offered by the respondents did not sufficiently support the notion, contrary to popular perception, that technology and technical issues are major obstacles to the adoption of spatial technology in developing countries.

The problem was more attitudinal, as revealed through the interview; the major concern related to the willingness to change and to adopt the technology, particularly among the senior members of staff. Some of the staff were old and considered learning new processes to be too challenging. These observed issues were also relevant in the consideration of data coordination and information flow.

The gaps between the observed and desired levels of interactions also ranked higher with data services funding/pricing model, and spatial datasets dissemination and use. A logical explanation for this was that staff members tended to hold tenaciously to data collected in respective offices and to treat it as being their own personal data. Whenever they are required to share the data they always refer to the civil service rule of official data use, which precludes the sharing of sensitive and confidential datasets. The concern then is: Do all datasets qualify as confidential data? Some also used the excuse of the cost of data collection to explain why data could not be readily shared. The result is thus consistent with the assumptions that the improvement in data infrastructure is imperative to making informed decisions or policy.

In resolving issues associated with data infrastructure, respondents suggested that more energy be directed to develop a functional and integrated spatial data infrastructure. To achieve this as a start, it was suggested that the government should direct more resources and energy and develop the capacity of their agencies, especially in the

improvement of managerial and technical skills. In addition, there were views that legislative arrangements for better interaction are necessary. Some of the respondents were of the view that the system is too loose and unstructured, the situation they considered not favourable to promote inter-agency interactions.

Beyond improving data infrastructure, it was noted that dispute resolution was also a major issue that potentially impairs interactions among agencies. With regard to institutional issues, the research argument that the institutional processes are important for appropriate policy and decision making appear plausible and were supported by the findings. Issues relating to commitments and responsibilities; and capacity building also ranked high.

However, there seems to be fewer expectations regarding inter-agency integration with respect to economic, environmental and social considerations. These were not rated by respondents, as very important in promoting inter-agency integration. This might possibly mean these were obvious problems visible to all agencies and were often discussed whenever opportunity arises.

With differences in response, it is important to test if the observed gaps between the current levels and the desired levels of integration, as reported by the respondents, are statistically significant or whether they are essentially due to a variability of perception. In this regard, it will be imperative to conduct an analysis of the variability among the participants. This necessitates the adoption of the Paired-Samples T-test.

- *Statistical assessment of the observed gaps*

To validate the adoption of this technique, assumption of normality of data distribution was checked. The results of the check indicated that the assumption of normality was not violated. Thus, the application of the test was progressed. Table 6.11 show the results of the computation of T-test (Paired Samples Correlations).

The 53 respondents' perceptions of the levels of interactions were found to be significant for some parameters, indicating that, only some of the participating agencies were consistent across land administration functions and between different levels of government in their desire for significant improvement in the present levels of integration.

It was also further observed that the strength of this perception was generally low or moderate as shown through the correlation. What this suggested was that there was substantially more variability in the respondents' perception of what is desired regarding inter-agency integration across functions and between different levels of government. This variability was mostly noticed in the areas of: organisational structure, communication between agencies, public participation, storage and maintenance of data, technology and technical issues. Others included: data creation and collection format data services funding/pricing model data services funding/pricing model spatial datasets dissemination and use.

When the differences were aggregated along the integration aspects, the assessment of respondents' perception of desired levels of integration was most consistent within the land administration processes. This was followed by the land management policy considerations. The responses mostly varied within data infrastructure and services.

Overall, in terms of what is desirable, respondents consistently want a significant improvement in the areas of land administration processes. They also want improvement in land management policy, particularly in the areas of environmental and social policy consideration.

6.4.8 Nigeria Case Summary

Land administration and housing production in Nigeria was closely linked with government policies on land tenure through the land nationalisation policy of the federal government. This had been found to impact the land ownership regime and the overall land use structure and management in the country.

The state governments have vested the power to control land administration functions: land tenure, valuation and taxation, use and development. However, the lack of a single custodian, and the dissemination and use of data in an integrated manner to make informed decisions remains a major challenge. The processes for executing policies are consequently unstructured.

It was also observed that the strategic component of local planning which was essentially planning scheme preparation were usually conceived and implemented at the state government level. With this arrangement, strategic and statutory planning

functions as observed were almost entirely the responsibility of the state government. As noted by some of the respondents, this essentially meant the state government had effectively usurped the powers of the local government to prepare planning schemes and local plans.

As a recap, it was observed that:

- Agencies were willing to be integrated through incorporation of policies, process and data infrastructure by reference to the legislations as revealed by the insight offered through the structured interviews.
- The research findings did not sufficiently support the notion, contrary to popular perception, that technology and technical issues were more challenging to the adoption of spatial technology in developing countries.
- The levels of interactions were found to be significant only for some parameters, indicating that, fewer proportions of the participating agencies were consistent across land administration functions and between different levels of government.
- There was more noticeable variability in respondents' perception of what was desired regarding inter-agency integration across functions and between different levels of government.
- This variability was mostly noticed in the areas of: organisational structure, communication between agencies, public participation, storage and maintenance of data, technology and technical issues
- Most agencies desired improvement in the present levels of inter-agency collaboration.
- Overall, in terms of what is desirable, respondents consistently wanted a significant improvement in the areas of land administration processes and land management policy, particularly the areas of environmental and social policy considerations.

6.5 Analysis of inter-agency integration in Australia and Nigeria: common themes

Overall, the case study areas offered a learning process to provide insights and innovations to gain and improve understanding of inter-agency integration. There were some noticeable similarities and some discernable differences (see Appendix VII). Both case studies were federated countries. There were comparable similarities in the rate of

population growth especially in the capital cities. There were also similarities regarding the challenges of land management especially institutional issues that impact on land administration processes particularly within respective national jurisdictions. For example, the assessment of the state jurisdictions highlighted the issues that were required to establish better management of data to make appropriate decisions. The need for formal, well-managed and process-driven mechanisms, were highlighted during the research. The central role of the state government relative to federal and local governments was also acknowledged.

The consistent but heterogeneous nature and needs of local governments, as well as, their capacity limitations and other peculiar factors were also noted. There was noticeable competition rather than cooperation among agencies in both national jurisdictions (although in varying degrees).

However, there were differences in the political structure and the constitutional arrangement that affected the way land was managed. This significantly impacted the strategic-planning approach through to the operational-planning approach. As an example, the linked processes between land and development rights determinations were significantly different in both national jurisdictions. In Australia, the system was well-structured and organised, whereas in Nigeria the system was informal and largely autonomous. These throw up peculiar challenges in respective national jurisdictions.

Overall, the peculiarities of each national jurisdiction offered a broader potential for a more generic strategy to deal with the problem of land delivery for housing on a global scale.

Some of the peculiarities in each of these jurisdictions included variations in land administration systems and the organisation of housing. It also included the structure and differences in the application of the constitutions. The Nigerian constitution, unlike Australia's, recognises the local government as the third tier of government; in practice, local government is more actively engaged in planning considerations in Australia than it is the case in Nigeria. While the constitution, in Nigeria, allows for a federal system of government, the operational structure was composed of more unitary systems (quasi-federated systems of government).

In Australia, local governments were more involved with issues that impacted directly and indirectly on land release for housing. This structure has been criticised by research respondents on the bases that there was too much focus on operational activities with regards to the *use and development* rights concentrating at the local government level, instead of a more strategic planning focus at the state and national levels.

Conversely, in Nigeria, strategic and statutory planning functions were organised and implemented at the state level. This could potentially be linked with the prevailing land tenure and land use policies and the prevailing unitary structure. The majority of respondents were opposed to this structure and were of the opinion that major decisions were far removed from the local communities.

6.6 Chapter Summary

The integration assessment framework was applied as a tool, empirically, to determine the levels of inter-agency collaboration in Australia and Nigeria. One clear outcome of the analysis is that the optimal level of inter-agency integration varies from one organisation to the other, according to the priority and the interest of the organisation. In this regard, the highest level, as conceived in the integration assessment framework, was not considered the optimal level desired. It was therefore difficult to conclude that the attainment of the highest level of interaction, on the integration scale, is a condition suited for better efficiency or effectiveness for organisations performing its responsibilities. However, there are sufficient reasons to suggest that by improving the present levels of integration, this will facilitate better outcomes. In this regard, the optimal level of integration is situated within a continuum of the integration scale, with each organisation desiring to sit at the most suitable point on the continuum (with the potential or aspiration to move up along the scale).

The major values of the different levels of integration for land delivery systems discernable, as revealed through qualitative and quantitative analyses, in the case study areas included:

- i). the opportunity to serve as a veritable tool to assess land tenure and registration systems and the linked processes of determining land development rights

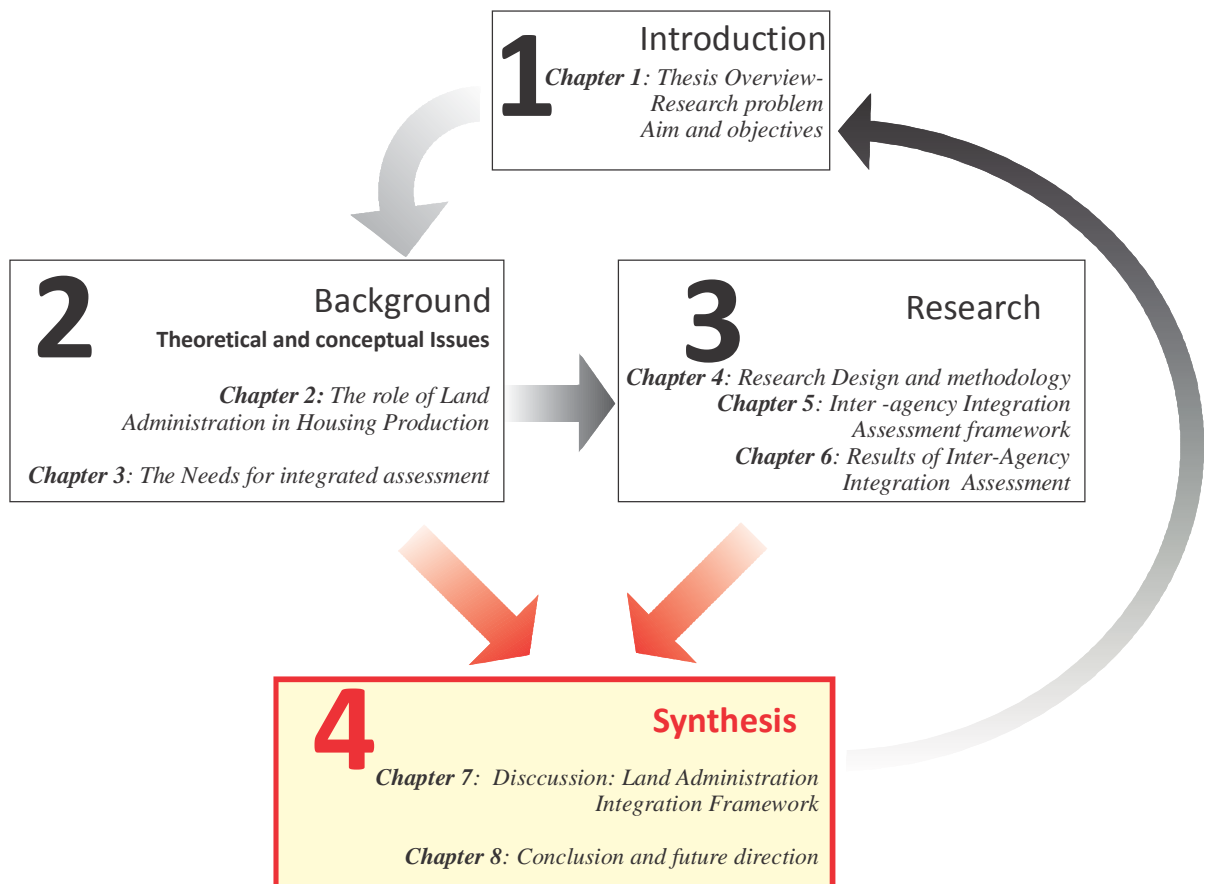
- ii). the opportunity to improve our overall understanding of the ways land is managed and governed and to offer a better assessment of the impacts on land delivery for housing.

There was sufficient evidence to suggest that most agencies wanted improvement in the present level of collaboration. It could also be inferred that inappropriate conceptualisation and utilisation of land management policies and processes hindered and limited the potential of agencies to collaborate and effectively deliver developable land for housing production.

In addition, it was observed that policies were not sufficiently informed by data and that due to a disconnect between agencies; policies formulated did not stimulate integrated processes among land agencies. It was also observed that the processes did not sufficiently drive the type of data that were collected by the agencies. It is logical to conclude therefore that better collaboration will enhance efficient and effective delivery of land for housing production. This is considered consistent with the earlier proposition of this research.

Chapter 7 utilises the outcomes of the analyses in Chapter 6 as a basis for the development of LAIFH. The LAIFH discusses how improved levels of integration could facilitate land delivery for housing production outcomes. The implication of the levels of integrations for effective land delivery for housing production is further explored through the application of the integration framework.

Part 4



Chapter 7

Discussion: Land Administration Integration Framework

7.1 Introduction

The main thesis of this research is that there is a need to develop strategies to improve inter-agency integration. Chapter 6 analysed the present and the desired levels of inter-agency integration using the cases of Australia and Nigeria. The analyses were intended to provide a sufficient basis for the development of improvement strategies.

Chapter 7 focuses on developing Land Administration Integration Framework for Housing (LAIFH). This is intended to achieve the fifth research objective by bringing the conceptual framework and the results of the assessment together to develop the integration improvement strategies. The framework offers strategies to improve integration of data infrastructure with land management policies and land administration processes. In this regard, it proposes to facilitate the delivery of land for housing production.

Following from these, section 7.2 discusses the evaluation of the integration assessment framework. Through this, the limitations of the IIAF are identified and potential ways of solving the identified problems are outlined. Section 7.3 then discusses the processes for the development of the LAIFH based on the key findings in Chapter 6. The ability of LAIFH to improve inter-agency integration is later evaluated through two demonstrators.

7.2 Evaluation of the Inter-agency Integration Assessment Framework

The assessment framework is evaluated within the scope of the results of empirical analyses as presented in Chapter 6. This is progressed by outlining the benefits, the inherent problems and providing scope for the improvement of inter-agency integration.

As outlined below, the IIAF has the ability to:

- i). Interactively assess, by comparing the present and desired levels of interdependence of agencies across land administration functions: land tenure, land value, land use and land development.
- ii). Facilitate visual mapping of the interdependence of different levels of inter-agency interactions with the adoption of appropriate test statistics (for example, the SNA Statistics).
- iii). Assess the simultaneous contribution of each integration aspect in explaining what area of interactions needs to be improved.

Notwithstanding these potentials, it was also observed that the framework also has some limitations.

7.2.1 Limitations of the IIAF

- i). Populating the list of organisations involved in land management, housing and urban development could be very challenging, as the list might not be exhaustive. In this regard, some relevant organisations might potentially be left out of the analysis. While this is not an inherent weakness of the framework, it has the potential to undermine the inferences and conclusions if not appropriately managed.
- ii). It was found in this research as presented in Chapter 6 that the relative importance of each issue varied from one jurisdiction or function to the other which made the decision on its overall level of importance difficult to generalise. This is also not considered an inherent problem. However, it should be carefully noted when analysing results and making inferences about findings.
- iii). The approach relied essentially on the perception of respondents, which might introduce some bias.

7.2.2 Suggested improvement to the IIAF

- i). It is suggested that people's perception should be corroborated with other perspectives or measureable evidence. For example, outcomes of a process – levels of quality of housing, levels of housing insecurity – could be measured against the input to determine success.
- ii). Further studies are recommended in another context to further verify the reliability of the measurement variables.

- iii). It is recommended that a rigorous desktop analysis be carried out to include, as much as possible, all the relevant organisations in order to replicate this approach in another case study area. This will thus effectively take care of the contextual aspects of the analysis.

Having noted the potential and limitations of the IIAF, the application of the framework exposes some inherent problems of inter-agency integration in Australia and Nigeria. The next section discusses suggestions to resolve the observed integration problems.

7.3 Resolving inter-agency integration problems

By taking a cue from the preceding analyses (Chapter 6), some broad considerations to promote inter-agency integration across functions and between different levels of government emerged.

These include:

- *Shared resources*: share the efforts and costs between land administration functions and the jurisdictions to develop key dataset. There should also be effective coverage for capacity building, in managerial and technical skills.
- *Openness of access*: there should be sufficient efforts to provide access to data for community and businesses to promote public engagement and to maintain and develop products and services.
- *User centric configuration*: it is important that data infrastructure be driven by the processes within land administration functions. This is to prevent the creation of many incompatible and redundant spatial and non-spatial information sets. It is equally important that developing data infrastructure should not be limited to it being a product, but should be considered as a process.
- *Paradigm shift and new innovations*: agencies should particularly seek new ways of doing things, right from the operational-planning approach to the strategic-planning systems. For example, there is a strong need to develop a digital database that includes building information to allow better analyses (urban density and sprawl analysis, land use and transport analysis).

Based on the outlined considerations, the following are specific suggestions to resolve some of the issues associated with the inter-agency integration. The suggestions are based on the inferences from responses, as well as, direct suggestions by respondents in

the two case study areas.

It is suggested that:

- i). Managing land for housing production should follow the principles of good land management that is spatially enabled. In this regard, policy should be informed by data and evidence.
- ii). Policies around sustainability objectives should be sufficiently stimulated by the wider involvement and participation of all stakeholders. Such involvement must be based on evidence.
- iii). Following from the above, rigorous analysis should be performed to identify data gaps necessary to make informed decisions that will form a sufficient basis to challenge existing policies and processes.
- iv). Emphasis should be on providing a deeper understanding of the conditions within which different interventions might be effective. This, some respondents argued, should set pace for wider consultations, as well as, provoking wider public debate.
- v). Land administration processes should be based on appropriate policy.
- vi). Consultations regarding land delivery should not primarily focus on informing communities about governments' plans. Rather, it should be by engaging residents with a view to build plans around informed community opinions and preferences.
- vii). In a less developed land market (with fewer registered titles like Nigeria) government should embrace the concept of a tenure continuum of land rights that recognises and follows a path from informal to formal. The provisions of the 1978 Act should be reviewed in this regard, to accommodate different layers of subsisting tenure regimes to facilitate access to secured land for housing development.
- viii). An improved understanding of the organisation of housing production is extremely important. This is necessary to achieve an improved link between the process of land registration and ownership, as well as, the process of determining development rights.

Following from the identified challenges and the suggestions, as outlined above, there are enough bases to infer that a strong connection is required between the type of data collected and the quality of policies formulated. There are bases to equally suggest these are required to be linked with the institutional and administrative processes. A better

understanding of the land administration processes should thus be encouraged. These will also feedback to the type of policies that are formulated. From the foregoing, three major themes are derived: that policy should be informed by evidence; administrative processes should be based on policies; and that the type and nature of data collected should be driven by the institutional and administrative processes.

7.4 Development of Land Administration Integration Framework for Housing

The combinations of the suggestions for improved inter-agency interactions, with the outlined considerations to promote inter-agency integration offer strategies to develop the LAIFH.

7.4.1 Integration of research outcomes

The results of the integration assessment across land administration functions and between different levels of government, contributed to a clearer understanding of the land management policy, land administration processes and data infrastructure. Land management and the organisation of housing, highlighted the heterogeneous nature of each jurisdiction and provided a context for the understanding of issues that are particularly relevant to the organisation of housing development.

In addition to the results obtained through this research, the existing theory and knowledge base on collaboration, SDI development, land management, and housing production processes offered a firm foundation on which to build the LAIFH. Figure 7.1 illustrates the process that was used to develop the LAIFH (in the context of land delivery for housing production).

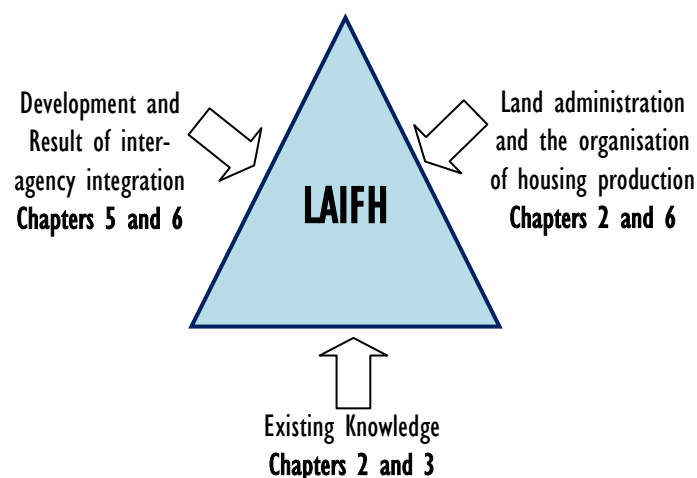


Figure 7.1 – Land Administration Integration Framework for Housing (LAIFH) development processes

As revealed through the analysis, it was found that the relative importance of each issue is contextual and thus varied from one jurisdiction to the other.

Some issues were not identified by the integration assessment survey, as the scope of the questionnaire was limited to understanding the levels of inter-agency interaction across land administration functions and between different levels of government. However, responses from the structured interviews (see Appendix IV) and the desktop analysis through documentary evidence provided other sources of information. This is structured to align with the triangulation research design. Issues or factors that were identified as being highly important included the sixteen parameters variables as initially discussed in the previous chapters. The next discussion focuses on the main components of LAIFH.

7.4.2 LAIFH: main components

The grouping of the identified factors, based on the findings through: desktop analysis, analysis of the structured interviews, and the inter-agency integration analysis, provided the bases to formulate a more generic LAIFH. The framework is illustrated in Figure 7.2. It consists of three key components: contextual factors, collaborative process, and housing outcomes.

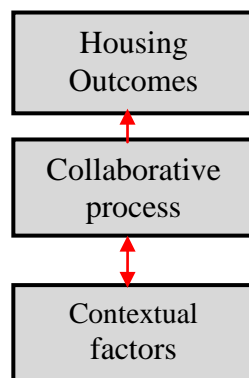


Figure 7.2 – LAIFH: main components

The importance of the *contextual factors* (land administration and the organisation of housing), in the inter-agency integration has been identified by a number of authors as presented in the background chapters. This was complemented with the analyses of the structured interviews. The findings from Chapter 6 have established differences in the jurisdictional and institutional context, hence their inclusion in the framework.

The component of *collaborative process*: data management, data services, policy, institutional process and institutional capacity; have been identified as a core aspect of the framework. This was also well supported by literature in the background chapters and the findings as presented in Chapters 5 and 6. The *housing outcomes* component measures the efficiencies and effectiveness of the conceptual and the collaborative components.

7.5 The links between the LAIFH components

It is important to consider each of the components of LAIFH and establish links between each of these.

7.5.1 Contextual factors

The understanding of the dynamic relationship between land administration functions and the organisation of housing can assist in the collaborative development processes that are required to improve delivery of developable land. Figure 7.3 illustrates this relationship graphically by showing how the framework reflects the dynamics and the continuum of housing production in conjunction with land administration, especially land acquisition processes. This is to develop further the land tenure continuum (UN-HABITAT, 2008) by including the linked processes of housing production (Figure 7.3).

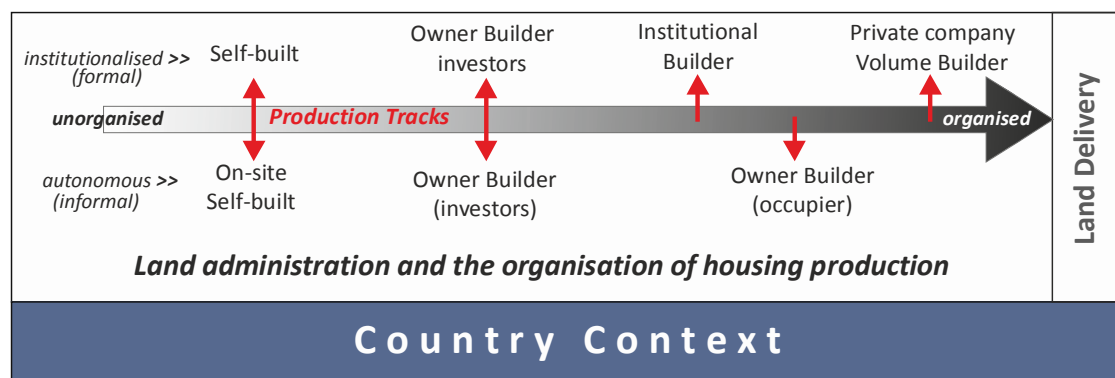


Figure 7.3 – The continuum of interactive link between land administration and the organisation of housing

As revealed through this research, the combined analysis of Nigeria and Australia cases presented scenarios that reflect a spectrum of different housing production tracks.

As shown in Figure 7.3, the production tracks offer explanations concerning the combinations of the means of production and the legality of the processes. This is

classified into institutional (formal sector) and autonomous tracks (informal sector). Since the interest of this research is focused on land, the production track considers the legality of the procurement of ownership and development rights and the implications for land delivery. To this end, it is split between unorganised and organised while the different arrangement is considered as a continuum. This also explains the players along the spectrum.

As shown in Figure 7.3, those participants along the institutionalised tracks operate within the legal framework stipulated for securing appropriate development rights. The participants along the autonomous tracks are self-built and they are mostly not aligned with the legal arrangements. Houses produced as a product of this arrangement are generally considered illegal. They usually do not have development permit or building plan approval. Where there are indications of such permit they are significantly altered to the extent that they are rendered invalid and of no effect. In Lagos for instance, residents have invented several unstructured ways to circumvent the formal arrangements.

The research confirmed the interplay between different housing production strategies, as a direct response to prevailing land administration system, especially the tenure and registration arrangements.

In Australia, the tenure arrangement is formal. The development assessment procedure is effectively monitored and controlled. This also throws up its own unique challenges in the way the housing market operates. For example, there are issues regarding the development assessment processes particularly the level of objections and the overall cost (tangible and intangible) of negotiating the processes.

It could be summed that the prevailing land tenure regimes impact land ownership arrangements as well as the use and development rights. This invariably impacts land supply and the organisation of housing production. It was further observed that these generally drive the unique interaction of the political and institutional environments. These interactions determine, to a larger extent, political and the legal structure, business needs, and land management policy.

Since political environments are dynamic and the policies developed impact on individual agencies or departments, it is important to develop a better approach to land supply that takes into consideration these unique interactions. It is also important that in the predominantly informal countries, the unique strategies of individuals to procure housing within the overall land market should be first acknowledged. Second, the land management arrangements in each national jurisdiction are particularly important, and must respond appropriately to the prevailing situation. The understanding of which should provide a forum for negotiating common goals, performance measures and future strategies.

Overall, the nature of land acquisition and the legal requirements is considered imperative in shaping the organisation of housing industry. The inter-relationship and inter-dependent of these is discussed next within the collaborative process.

7.5.2 The collaborative process

The collaborative process concerns how the interactions between the agencies impact land delivery and consequently housing outcomes. Past studies in both Australian and Nigerian cities have offered clear attestation to the role of land management in housing production outcome. The current research findings have also complemented these past studies.

As initially established in Chapter 2, housing is both a process and a product. As a process, the production of housing involves a lot of activities that are interactively linked. One of the integral parts of these processes involves obtaining development permit from the relevant authority. The way this is progressed is found to determine the success or otherwise of the housing outcomes. It was also found that the three key elements of the collaborative processes – data infrastructure, land administration processes and land management policies – are important considerations. From the research findings, the interactions between data infrastructure, processes and policies are considered cyclical as illustrated in Figure 7.4.

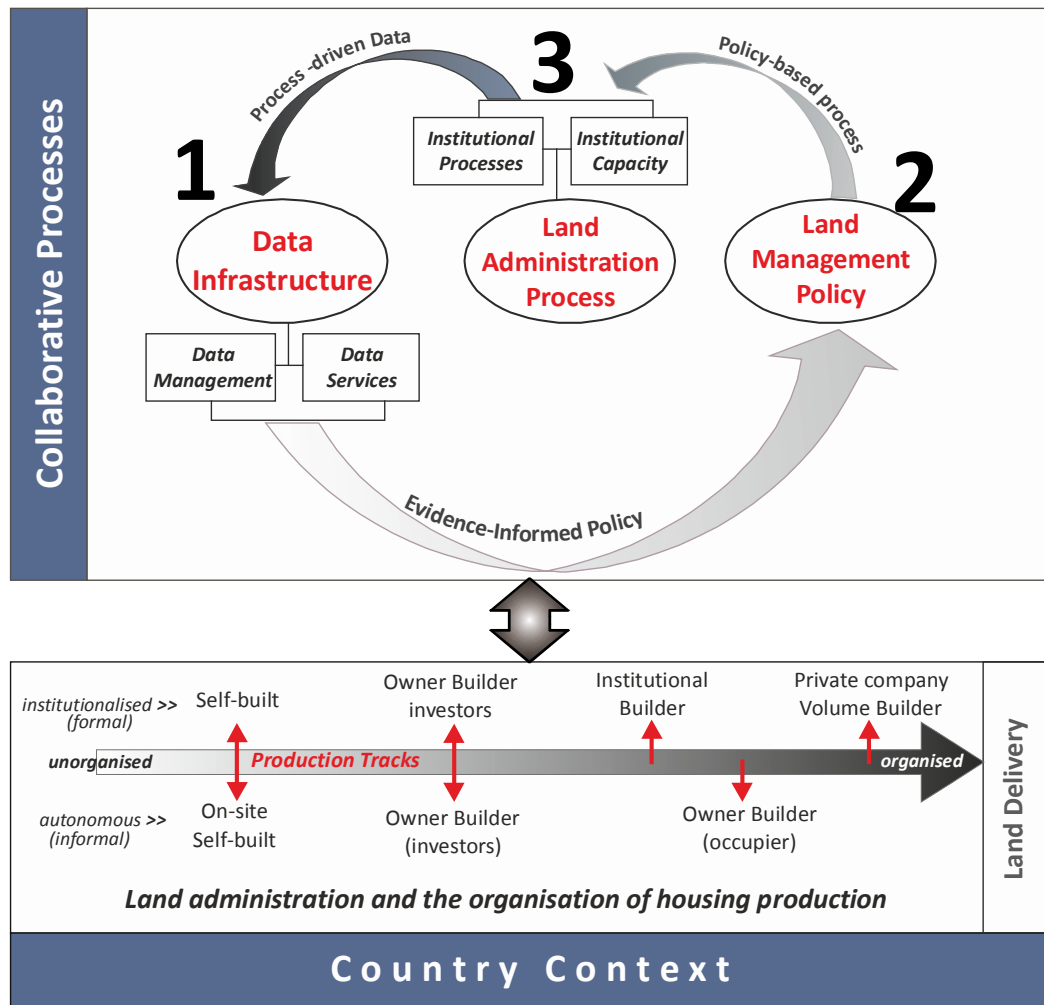


Figure 7.4 – The collaborative improvement strategies

Three aspects of the collaborative processes were initially identified (discussed in Chapter 5). These include: land management policy, land administration processes and data infrastructure. These three, with the associated components, provide bases for discussing the collaborative processes. The imperative for improving the interactions between and among components of these collaborative processes is now discussed.

1. Data Infrastructure

The way information develops into knowledge is based on the experience of the consumers. This is underpinned by the context within which information is interpreted and used. It is therefore important that spatial data infrastructure should be developed. This allows data to be developed into information within a particular context and information to be discovered, accessed, used and integrated. This is then converted to knowledge through interaction. This then provides a sufficient basis for the formulation of appropriate policies for the future. The strategy that allows for the development of

this type of policy is referred to as evidence-informed-policy as briefly described in Chapter 6.

To accurately estimate housing demand requires a robust combination of arrays of data across land administration functions. To improve land market and access to developable land, it is imperative to develop a structure that will provide strategies to identify essential/critical data gaps that are necessary for appropriate decision making. The two components of Spatial Data Infrastructure: data management and data services are now discussed in details.

- *Data Management*

Data management plays a critical role in the day-to-day operation and administration of a comprehensive data and the development of data infrastructure. The research identified that data were collected primarily by the agencies with the intention of the data being used internally. This arrangement was found to be inadequate for meaningful decision making and operational integrity. Regarding data coordination and information flow, the research observed that there were varied responses to the issue of privacy and copyright. Overall as it was the case in Victoria – Australia, privacy issues are found to be a major impediment to information flow. This seems contrary to one of the principles of spatial enablement, that spatial data needed for good governance should be available on the conditions that are not restricting its extensive use. It is important that this is adequately addressed to enhance access to data by most stakeholders, including the public; especially regarding issues that have wide ranging impacts on their life.

It is important therefore that appropriate measures are put in place to efficiently manage data, as a condition, for the development of spatial data infrastructure.

- *Data Services*

The major components of data services, as validated through the assessment of integration assessment variable construct, are: data funding and pricing model; spatial datasets dissemination and use. They are thus essential for spatial enablement.

One of the principles of spatial enablement is the requirement for the development of robust metadata. In this regard, data should be easy to discover to evaluate its fitness for purpose and to know which conditions apply for its use. The study observed that the

cost of data infrastructure was significantly borne by individual agency. Thus, the issues of data access and pricing resonate throughout the study. Pricing policies are thus considered a significant factor in the development of collaborative arrangements. The research also found that loss of control was often a major concern, by data custodians, in the sharing of data. This is in addition to the issues around confidentiality of *official* data.

However, the research identified that linking spatial data with location is challenging. This is needed to enable informed decisions about land tenure and land use that respond appropriately to the requirements of smart growth policy. This demands inter-agency collaborative arrangements to bring together information in a way that is sufficiently capable of informing appropriate policy development. This process of making informed decisions is now referred to as *evidence-informed-policy* in this research.

2. *Land management policies*

It is submitted here that evidence-informed-policy is capable of facilitating better land management policies. Good land management is recognised as being an important component of inter-agency collaborative efforts, and therefore it is essential that any collaborative framework should have an appropriate governance structure. To this end, the triple-bottom sustainability policy objectives become very relevant and essential.

From the preceding analyses in Chapter 6, it could be inferred that, policy implementation requires both top-down and a bottom-up approach. Arguably, as revealed through the research, there is little connection between policy and day-to-day practice. There is sufficient evidence to suggest that land management policies and the organisation of housing policy is not always appropriately implemented especially in a less structure systems like Nigeria.

One of the reasons for this is that the political and institutional arrangements have ignored the autonomous housing production sector for so long. Consequently, the prevailing policies have revolved around the treatment of autonomous sector as illegal. Yet, the sector contributes significant proportion of housing (more than 70% of housing development in Nigeria) in most developing countries.

This study shows that the link between policy and the implementation strategies is often

too weak. As exemplified through the research, there was no sufficient evidence to support integration strategies for economic, environmental and social policy considerations among agencies. Where there were elements of policy considerations, the willingness to align policy consideration was not consistent and most often limited between agencies. As a result, decisions taken during the implementation of projects are subject to the whims and caprices of the presiding agencies. Overall, it is imperative to develop what is described in this research as *policy-based-process*. It is argued here that policy-based-process has the capability to facilitate integrated land administration processes.

3. Land administration processes

The major consideration, here is the determination of ownership and development rights. It is important to ensure planning and development control requirements are clear and consistently applied to link the two. To this end, it is important to achieve timely approvals, by implementing strategies that will reduce: complex or lengthy planning assessment processes; inconsistencies in residential land availability; gaps in land supply sequences; excessive or uncertain fees and charges associated with planning approval. As revealed through the study, the above could potentially be achieved if the institutional processes and institutional capacity are effectively linked.

- *Institutional Processes*

As revealed through the study, the public was not sufficiently and adequately engaged with the process of governments' policy directions. One of the limiting factors being the organisational structure that was essentially operating on standalone basis. These observed limitations and inadequacies need to be well mitigated.

- *Institutional Capacity*

This describes the capacity of agencies regarding how to manage their resources, resolve dispute, and build capacity. The study reveals that for institutional capacity to be enhanced it is often considered that resources and existing infrastructure should be shared. It is also considered that there should be strategies to resolve disputes and misunderstanding among and within agencies. There were noticeable challenges regarding human capital development especially in Nigeria.

Overall, institutional capacity and processes should be organised in such a way to facilitate the development of appropriate spatial data infrastructure. It is important that there are appropriate strategies to consider how data infrastructure could be driven by land administration processes. In this regard, data gaps should be carefully considered and analysed. The determination of this is described here as *process-driven data*.

7.5.3 Housing outcomes

The outcomes component of the framework (Figure 7.5) provides a mechanism by which to assess the effectiveness of the contextual issues and the collaborative processes. One of the important aspects of this research was to analyse and determine the impact of the inter-relationship of data infrastructure, land administration processes and land management policies on land delivery for housing production.

However, since the production of housing is not, in itself, the only outcomes of efficient land administration integration, housing production processes should be conceived to have capability for multiplying impact on the growth and development of cities. From this perspective housing production should be measured from its ability to satisfy affordability, sustainability, productivity and liveability.

It is therefore important to consider the potential application and contributions of the framework to enhance land delivery for housing production. Each iterating loop of the collaborative processes should be assessed against the capacity to deliver developable land that satisfies housing output parameters of: productivity; sustainability; liveability and affordability. In this regard and consistent with the suggestions of the Australian Productivity Commission (2010):

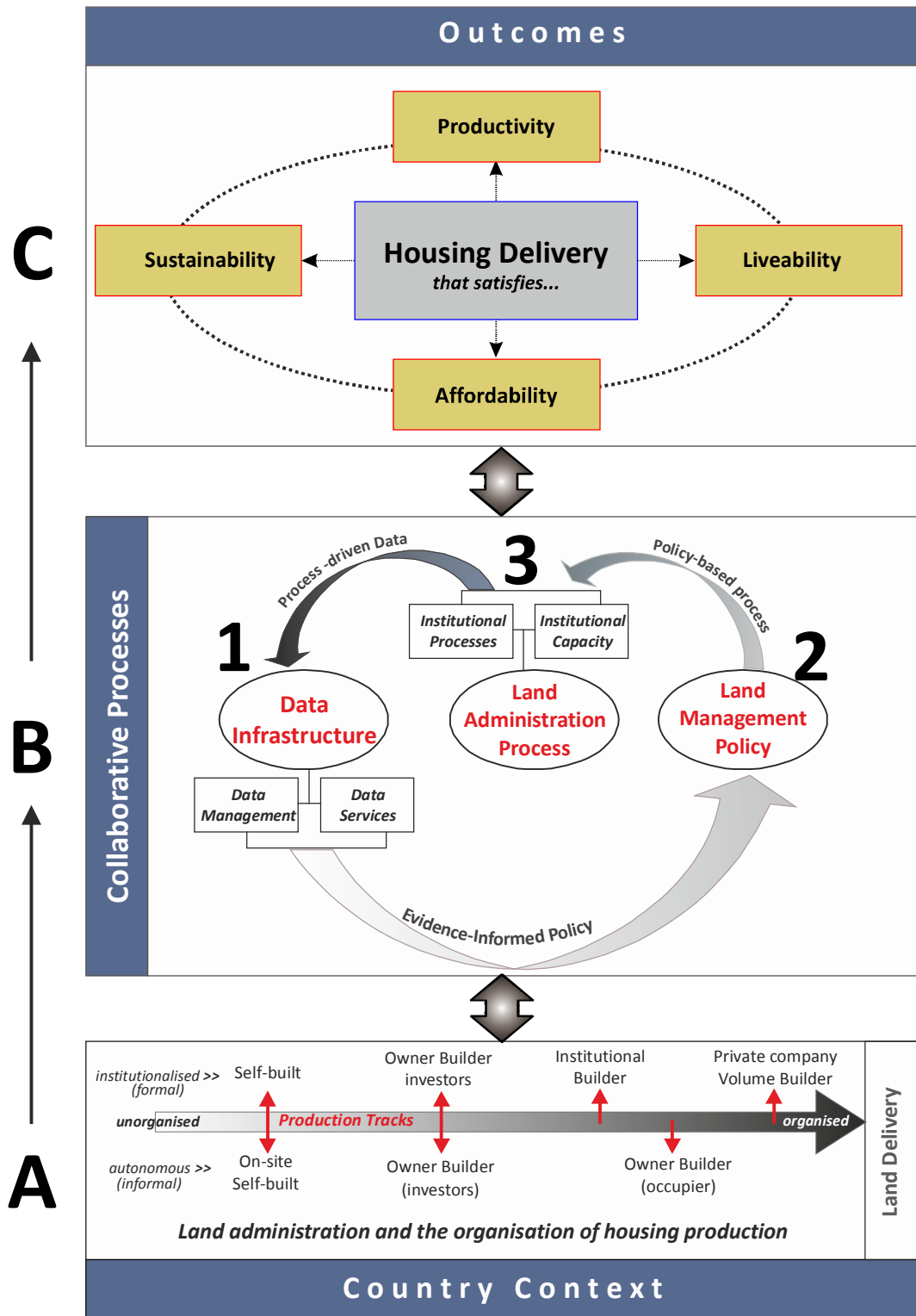


Figure 7.5 – Schematic diagram of the Land Administration Integration Framework for Housing

Productivity should be checked against but not limited to:

- improvement in integrated land use and infrastructure development
- improvement in labour and capital productivity

- improvement in efficiency of urban infrastructure utilisation.

Sustainability should be checked against but not limited to:

- more efficient and balanced use of natural resources, especially land
- protection and sustainability of both natural and built environments
- improvement of air quality and reduction in greenhouse gas emissions.

Liveability should be checked against but not limited to:

- improvement in the supply of appropriate, mixed income housing
- improvement in accessibility and reduction in private motor vehicles dependency
- improvement in support for community wellbeing and social inclusion, especially the vulnerable groups
- support for affordable living choices.

Affordability should be checked against but not limited to:

- the ability of people not to spend more than a reasonable proportion (30%) of their income on housing.

Land administration should target achieving each of the objectives of the housing outcomes as outline above. It is thus recommended that until these are achieved the iteration of the integration process should be repeated.

7.6 Looking ahead: applying and evaluating LAIFH

The key objective of the LAIFH is to contribute to the improvement of inter-agency integration in a way to facilitate the development of a more efficient and effective way of making land available for housing production. Two demonstrators: *housing development potential analysis and visualisation*, and the *analysis of development assessment approval* are developed to be put forward as scenarios for the potential application of the framework. The demonstrators showcase the values of integration of data infrastructure and land administration process to increase efficiency and reduce cost: in terms of money and duration. To apply the framework, it is imperative, based on the preceding discussions, to:

- i). understand, first, the interactive link between land administration and the organisation of housing, the contextual factors (Agunbiade, 2012 #530)

- ii). Develop spatial data infrastructure, based on the contextual factors, that:
 - identifies the data gap and the custodian of data
 - determines the willingness to align data format, storage and maintenance, technology and technical issues. This is with a view to improve data coordination and information flow, funding and pricing model and thus achieve improved spatial datasets dissemination and use
- iii). develop appropriate policy, based on appropriate evidence from the data infrastructure
- iv). assess the institutional capacity and the prevailing processes and see how this could be improved to implement the policy
- v). determine what data is required to spatially enable decision making based on the enhanced and integrated processes (complete the loop).

However, it is acknowledged that the formulation and implementation of policies usually takes a longer period for it to be fully evaluated. It is also acknowledged that land administration processes required to implement land management policy equally, take time to evolve. Consequently, the evaluation and application is limited to: the value of data infrastructures in the formulation of land management policies and how this impact land administration processes.

Within this context, an attempt is made in this section, to evaluate how data integration and data infrastructures development could facilitate land delivery for housing. It should be noted that the value of the framework is dependent on jurisdiction and the local context. The discussion is also articulated from the perspective of what is considered the desired optimum level of inter-agency integration by land and housing agencies.

7.7 Demonstrators for land and housing analyses

The application of LAIFH for land delivery for housing production was progressed by developing a data integration platform (a digital work environment) to demonstrate the value of integrating data to support improvement in land administration process and the formulation of land management policies.

In this regard, a platform was developed that allow different datasets to be integrated for analysis and visualisation. This is with a view to providing better ways of analysing, developing evidence-based policy and communicating with the stakeholders. In

particular, this is intended to demonstrate the challenges and prospects of integrating land administration processes with land management policies to facilitate land delivery for housing production. With this, the value of making informed and convincing decisions based on integrated data is demonstrated.

The two major components of the platform are: *housing development potential analysis and visualisation*, and the *analysis of development assessment approval*.

7.7.1 Housing development potential analysis and visualisation

The first demonstrator focuses on the analysis of housing development potential and visualisation. This is to:

- i). identify building sites and spaces that have the potential to accommodate additional housing especially in the greyfield areas
- ii). demonstrate the value of aggregated information set about land interests held by government
- iii). to visualise the analyses in a 3D environment.

The re-zoning of *greenfields* and/or material change of use especially in the *greyfield* areas is common in most jurisdictions. The process of re-zoning usually takes between one and three years depending on scale and complexity. Most often, the challenge associated with re-zoning is balancing the tension between the proponent of urban sprawl and compact city developments.

- *Interactive link between re-zoning or material change of use and the organisation of housing*

Contextually, the relative position of a jurisdiction on the continuum of land administration and the organisation of housing determines how land is re-zoned and how re-development is managed. In Australia, the decision to adopt a particular strategy has been found to significantly impact direction for re-zoning (land release in the *Greenfield* areas) and material change of use (in the brownfield and greyfield areas). In Nigeria, there are additional issues of re-development and urban renewal, especially managing tenure security and the requirements to meet the *Millennium Development Goals*.

- *Assessing data gaps for the rezoning or material change of use (Australia)*

Most often, as indicated in Chapter 6, datasets reside with agencies on a standalone basis. They are not efficiently utilised across and between governments and do not facilitate evidence-informed policy-making. Where these infrastructures are available, too much focus has been placed on data collection and sharing as an end, rather than as a means to an end, in supporting the appropriate decisions.

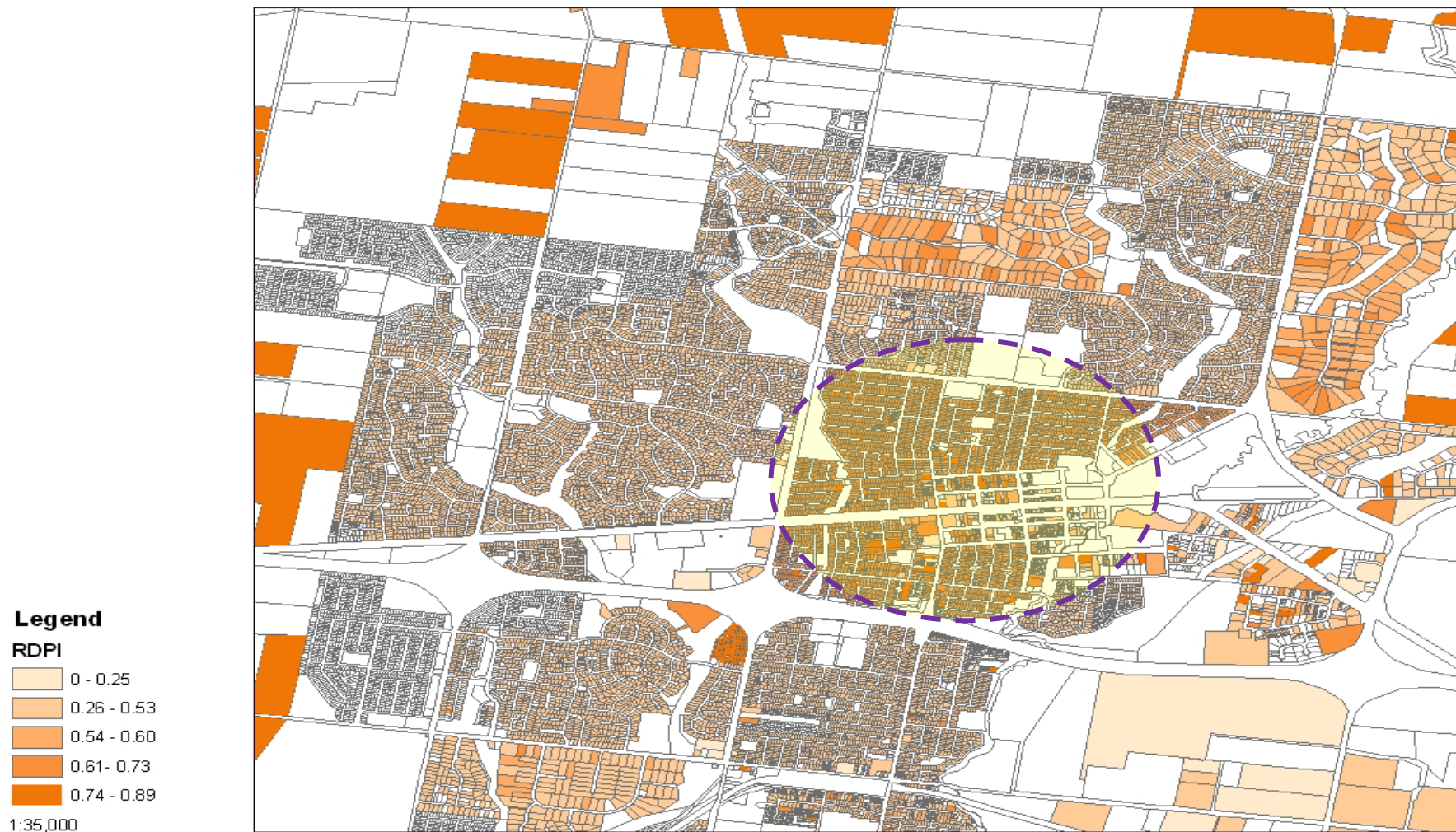


Figure 7.6 – Residential Development Potential Index

Source: Generated using ArcGIS 10 software

The requirement to calculate and determine the *Residential Potential Index* (RDPI) is closely correlated with the success of linking planning dataset with valuation datasets. RDPI, as used here, is a measurement of the potential of developed sites for re-development (especially in the Greyfield areas). This type of analysis could only be performed if data are available at parcel level. There is sufficient evidence to assert that there is a disconnection between valuation data and planning data both in Australia and Nigeria for this type of analysis.

As indicated in Figure 7.6, the highlighted area shows an established suburb that has potential to be re-developed. This is an undercapitalised area where the cost of building is far less than the cost of land based on the derive index. This is suggesting that land in this area could be optimally utilised if it is re-developed.

In Nigeria, planning for *change of land use* focuses essentially on urban renewal of the blighted areas of the city. The authorities still relied on reconnaissance survey of the 42 blighted areas conducted by the UNDP in 1985. However, there are indications that the identified blighted areas are growing in response to lack of integrated land administration and linked processes. A more recent assessment (in 2006) by the Urban Renewal parastatals of the Lagos Ministry of Physical Planning and Urban Development indicated that the blighted areas are more than 120 sites. What this translates to, is that policies are based on conjectures and assumptions, and the gravity of the problems not being adequately assessed. The level of analysis presented in Figure 7.6 is required in this regard.

7.7.2 Analysis and visualisation of development assessment approval

The second demonstrator focuses on the analysis of development assessment approval. Development assessment involves the processes, by the responsible authority, to determine development potential of a particular site for appropriate use and development. This stage covers housing design, statutory planning for development assessment and the building approval for construction. Development assessment and building approval processes are very tedious and cumbersome. Most importantly, the layers of processes and the type of documents required have been proved to contribute significantly to the delays in land delivery for housing production (DAF, 2005; Gurran et al. 2010). It is therefore, important to:

- i). analyse the development approval processes with a view to determining efficiency, effectiveness, time and cost
- ii). assess spatial patterns from the analyses
- iii). evaluate the implications of current practices for strategic planning and legislations.

- *Assessing data gaps for development approvals and dwelling construction*

The data requirements include records of building and planning permits. Most often, these are distributed among several agencies and referral authorities. However, integrated data are required to effectively assess this stage and consequently offer pragmatic solutions to improve efficiency and reduce the time frame to complete the process.

In Australia, because of lack of complete records of building and planning permits until recently, there were some popularly held views that were not sufficiently supported by facts. For example, delays in the processing of development assessment approval have been blamed mostly on third party objections.

With the Planning Permit Activity Reporting System (PPARS) records (of over 50,000 development assessment data records in Melbourne), it is now possible to determine the implication of third party on development assessment.

It is important to note that this type of analysis was made possible because of the integration of different data records obtained from the local councils in Victoria that were integrated DPCD. This further underscores the importance of data integration and the development of data infrastructure.

Essentially, the full potential of this dataset is better appreciated when the datasets were spatially enabled as illustrated in Figure 7.7. By this, it is meant that the data records are geo-referenced or spatially referenced. As shown in Figure 7.7, the duration of development assessment could be compared to the number of objections spatially. In this regard, it allows better analyses and visualisation of the observed pattern. This offers better means of communicating findings as well as formulating policies and making decisions.

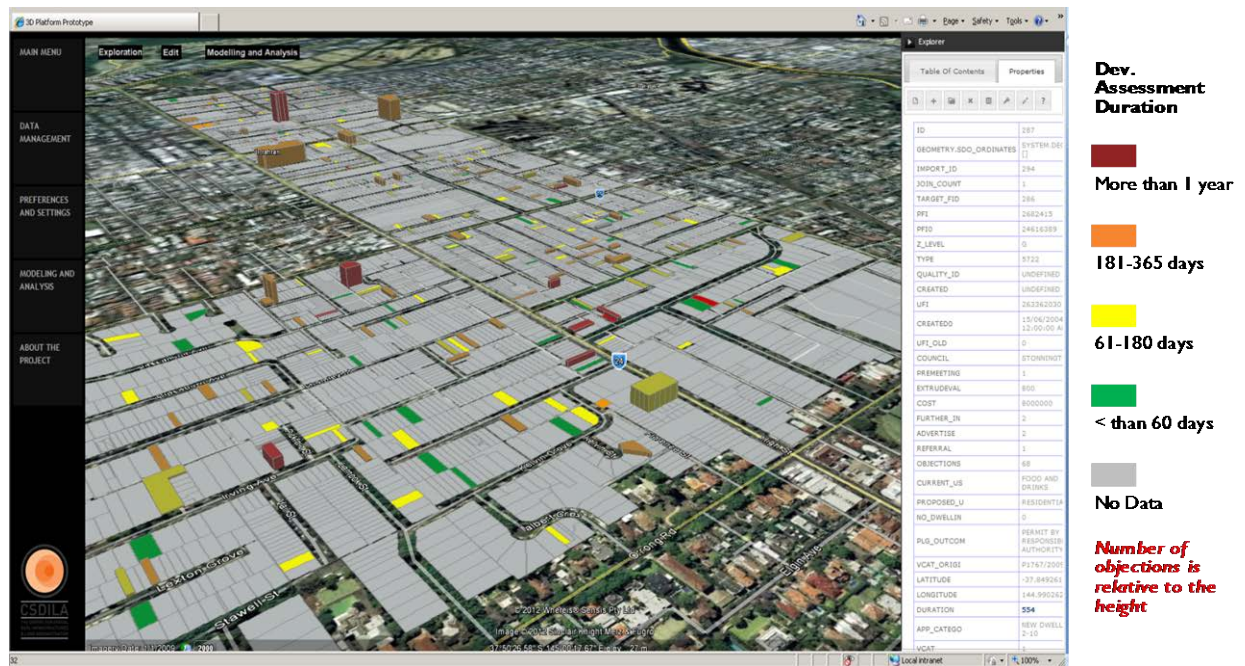


Figure 7.7 – Analysis and visualisation of spatial pattern of *Objections* and the *Duration* of development assessment approval

It is envisaged that if the demonstrators are further improved they have the potential to assist in resolving some of the integration issues discussed in this research. Further research is, however, suggested for the application of the LAIFH to test the development and implementation of land management policies. This is because policy formulation and implementation usually take a longer period to be fully evaluated. The processes to implement the policy equally evolve overtime. Future research could focus on assessing land management policies and land administration processes against the six-stage generic land development pipelines and processes discussed in Chapter 2 (Figure 3.1).

7.8 Framework application in other national jurisdiction

The motivation to undertake the assessment of inter-agency interactions in two contrasting national jurisdiction is to provide bases for the development of a generic improvement framework. The initial assessment of the application of the framework to the study areas, indicate that it has potential to be replicated. It is thus anticipated that the framework will find relevance in other national jurisdiction other than the studied countries.

One of the major values of the LAIFH, as contained in the preceding discussions, is the potential to accommodate contextual variation regarding land administration and the organisation of housing. It was established that better understanding of the linked process is significantly important for any meaningful progress. In this regard, platform for data infrastructure development and the formulation of appropriate policy that is informed by convincing evidence is essential.

It is thus envisaged that the framework has the potential to be adopted as a template for other federated jurisdictions. However, the contextual factors should be taken very seriously.

7.9 Chapter Summary

This chapter has presented the LAIFH. The findings from the analysis chapter were drawn together to identify common themes and factors that have formed the basis of the integration improvement framework. The framework consists of three core components: contextual factors, collaborative processes and housing outcomes. The detail of each of the components was described. Data and survey results from the case study areas were used to operationalise the framework. The impact of the framework in facilitating improved integration was also examined.

The LAIFH was examined from the context of its applicability and useability by developing two demonstrators. The evaluation of the framework in facilitating effective delivery of land for housing was discussed within the context of the demonstrators. It was noted that inadequate development of spatial data infrastructure should be assessed within the context of the interactive link between land administration and the organisation of housing.

Regarding the collaborative process, the significant strength of LAIFH is that each iteration loop has the inbuilt capacity to improve efficiency and effectiveness of the process sufficient to facilitate delivery of developable land for housing production.

A comprehensive programme should be initiated across the public sector that increases the understanding of: how the spatial and geospatial infrastructure can be used to facilitate improved decision making. It is imperative to develop strategies to ensure

better data collection, maintenance and dissemination processes within departments and agencies.

Example applications of the LAIFH, through the demonstrators, have shown the potential to be applied to federated systems of government although the contextual issues are a major consideration for its success. However, as with any cyclical framework, the inherent problem is the limitation to deal effectively with short time issues.

In dealing with the challenges of poor integration among agencies, it is suggested that within the scope of specific land delivery project:

- i). key decision makers must be identified in the vertical and horizontal organisational structure
- ii). strategies must be designed to ensure the key players are fully and well integrated
- iii). there must be ways to deal with the longevity of the core decision makers.

The next chapter presents the conclusions of the research. It first examines the overall achievements in response to the initial research questions and stated objectives. The significance of the research is then discussed and recommendations for further research are presented.

Chapter 8

Conclusion and future direction

8.1 Introduction

The research investigated inter-agency integration across land administration functions and between different levels of government in facilitating land delivery for housing production. This chapter contains a summary of Chapters 1 to Chapter 7 and the overriding key findings by evaluating each of the stated objectives. It highlights the significance of the research work to theory and assesses it against practice, by reflecting on the original research problem and suggesting directions for future research. To this end, it closes the loop of the thesis roadmap as illustrated in Figure 8.1.

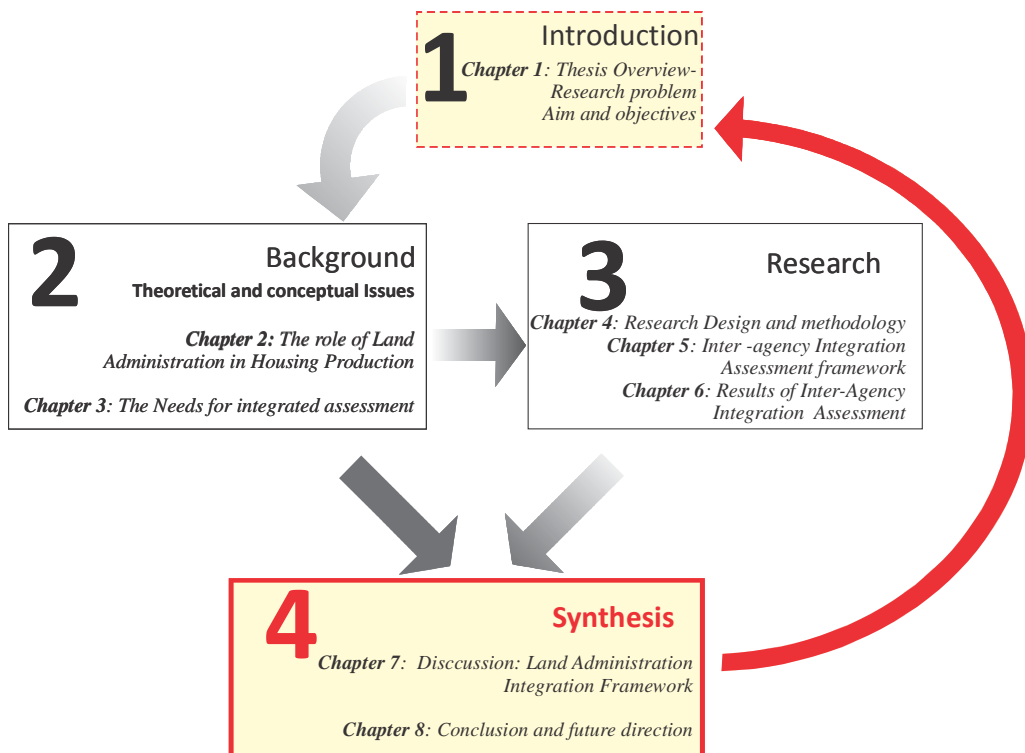


Figure 8.1 – Thesis road map: closing the loop

Overall, the result of this study is of particular significance in federated countries given the hierarchy of governance and the tendencies for jurisdictional independence.

8.2 Research aim and objectives

As stated in Chapter 1, the central aim of this thesis was to: *develop and evaluate a LAIFH to improve inter-agency integration across land administration functions and between different levels of government in order to facilitate land delivery for housing production.*

In Chapter 7, a generic LAIFH was developed as a tool to improve the inter-agency integration. To achieve this, a mixed methods research approach was successfully utilised. This research strategy provided a number of advantages, including the ability to investigate different dimensions of the research problem.

The LAIFH successfully described and assessed the multi-view nature of inter-agency collaboration initiatives. The framework recognises the context of the collaboration, the collaborative process and the outcomes of collaborative initiative. In addition, the framework was used to, effectively, determine how land delivery could be facilitated to support housing production. The objectives of the research aim will now be reviewed and discussed.

8.2.1 Objective 1: To develop a conceptual relationship between land administration and housing production.

This is to Identify and conceptually link the role of land administration in housing production. Within the context of this research, housing is viewed both as a process and a product. The significance of the processes in delivering the product is, however, of considerable importance. Land administration plays a significant role in this process. Many perspectives in understanding the relationships between land administration and housing were identified. These include: The political economy perspective (land governance) and economic perspective (the production factors). The combination of the different perspectives offered by different disciplines provided a holistic view of factors internal or external to land administration as it underpins housing production. Essentially, this research draws on the insights provided by maintaining a strong awareness of the political and economic context shaping access to land.

8.2.2 Objective 2: To establish the need for integration across land administration functions and between different levels of government.

Various aspects of land administration functions, especially the treatment of the functions as silos by various land administration agencies were considered. However, for most of the literature, land tenure and registration are treated as being synonymous with land administration. Historically, at the mention of land administration, what readily comes to mind is land information that centres on land tenure and land registration.

This perspective is obviously a narrow understanding of land administration. It also underscores the lack of attention paid to the integration of the other important functions, as being managed or coordinated by land use function. Admittedly, land use and land development takes input from land tenure, land registration and land valuation to function effectively. In fact, *land administrator* will argue that *land administration* supports 'housing' primarily through provision of tenure security. This research takes this further and advanced a new argument that the role of land administration in providing adequate housing is not only about providing tenure security. It is also about providing an integrated system of land administration processes. In other words, even if tenure is secured, we need linked processes to enable us to build houses. It is equally important that the roles of different hierarchies of government in performing land administration functions are given due considerations.

8.2.3 Objective 3: To identify parameters for integrating land administration across functions and between different levels of government and develop IIAF.

The Integration Assessment framework is conceived as a tool to assess the levels of inter-agency integration functions and collaboration of resources. The parameters for the integration assessments were derived through the aggregation of themes from the synthesis of different approaches: desktop research; and empirical analysis from the structured interviews and online survey. The delivery of land for housing production provides context. The land management paradigm provides the structure.

Three basic integration aspects: land management policies, land administration processes and data infrastructure were classified into integration parameters. Overall, sixteen parameters were identified. The corresponding measurement variables were

identified and conceptualised as a continuum (cooperation, coordination and collaboration). This resulted in the development of a two dimensional matrix to allow for effective measurement of the levels of inter-agency integration.

8.2.4 Objective 4: To analyse the levels of inter-agency integration in the case study areas using the inter-agency integration assessment framework.

The applications of integration assessment framework as a tool to, empirically, determine the level of inter-agency collaboration was performed. One clear outcome of the analysis is that the optimal level of inter-agency integration varies from one organisation to another, reflecting the priority and the interest of organisations. In this regard, the highest level, as conceived in the integration assessment framework, do not necessarily equate to the optimal level desired by the agencies. It is therefore difficult to establish that an attainment of the highest level of interaction, on the integration scale, would guarantee better efficiency or effectiveness of the organisation in performing its responsibilities and discharge of functions. This further confirms the proposition that the level of integration is a continuum along the scale of integration measurement, and should be treated as such, with each organisation desiring to sit at the most suitable point on the continuum.

However, there was sufficient evidence to suggest that most agencies wanted improvement regarding the present level of collaboration, notwithstanding the observable marked variability in the perception of the expected integration. It could thus be inferred that inappropriate conceptualisation and utilisation of land management policies and processes hinder and limit the potential of agencies to collaborate and effectively deliver developable land for housing production. It is logical to conclude therefore that better collaboration will enhance efficient and effective delivery of land for housing production. This is considered consistent with the earlier proposition of this research.

At the operational level, currently, there is too much focus on use and development rights concentrating at the local government level, instead of a more strategic planning focus at the state and national levels. It is thus recommended that there is a need for a paradigm shift. To this end, a clear '*line of sight*' should be established and maintained between different levels of jurisdictions to aid land-use planning at the levels of: site/parcel, street, local, regional, state and national.

8.2.5 Objective 5: To develop and evaluate a framework for improving inter-agency integration.

LAIFH was developed to facilitate land delivery for housing production. It consists of three core components: contextual factors, collaborative processes and housing outcomes. It offers strategies to improve integration of data infrastructure with land management policies and land administration processes to facilitate the delivery of developable land for housing production. This draws from the major findings and the inter-agency improvement considerations (as developed in Chapter 7).

Of particular importance are the contextual factors that established the dynamic relationship between land administration functions and the organisation of housing. Based on an improved understanding of diverse people to land relationships; the focus on formal tenure typologies and systems is considered not appropriate to stimulate housing production. Land management that concentrate on delivering individual private property titles especially for the on-site builder in an informal land sector have not considered alternatives more appropriately. The informal housing developments do not closely associate with formal tenure arrangements that are typically imposed by national land administration systems. This needs to be acknowledged, while appropriate strategies to encourage incremental improvement are put in place by decision makers, as this sector constitutes more than 60% of housing stock worldwide.

The framework discussed how improved levels of integration might improve housing production outcomes by exploring integration of data infrastructure and the effects of making informed decisions. The framework has potential to be applied to federated systems of government, while noting the importance of the contextual issues as being a major determinant of its applicability.

8.3 Contributions to Knowledge

The major contributions to knowledge are: first, the development of conceptual framework that provides a comprehensive approach to understanding the current relationship between land administration and housing production. Second is the development of IIAF in the context of housing production. Third is the development of LAIFH that provides strategies to improve interactions between land management

policies, land administration processes and spatial data infrastructure in facilitating housing production.

8.4 Suggestions for future research

- i). The levels of inter-agency interactions have been assessed, the optimal level desired has been outlined. The relationships between present limited inter-agency interaction and the efficiency of the land delivery process, from the administrative and institutional perspective were discussed. However, with the present analysis it was difficult to establish causality between variables used to measure the level of interaction and the delivery of land for housing. This is because there was no existing framework for understanding integration. It is suggested that further study is carried out to explore this area.
- ii). The study exposed the need to shift focus from spatial data management to spatially managing data (spatial enablement) especially to help in determining the actual housing gaps. It was noted that developing a digital database that includes building information modelling (BIM) was a major challenge. It is suggested that, the development and inclusion of building footprints as part of cadastre will serve as the needed geometric to spatially manage building information, necessary for making informed decisions. There is a need to study how this could be accomplished.
- iii). The evaluation of the collaborative processes within the LAIFH, as presented in this research, is limited to the data infrastructure. By acknowledging the realities and the challenges of evaluating policies and processes (these usually evolve over time), further studies are suggested in this regard. This is to examine land administration and land management policy components of the collaborative processes.
- iv). There is a lot of scope for innovative strategies to develop web portals where data could be integrated to enhance decision making across inter-agency functionalities (to further develop and improve on the CSDILA prototype platform developed for this research). This type of platform will assist in building an infrastructure that will focus on change of use analysis at parcel level. This will take into consideration previous, present and proposed use of

building. It is expected that such infrastructure will help to sufficiently manage the contending issues of intensification and sprawl development, as well as, the analysis of housing requirement in terms of the gaps between demand and supply. In this regard, as at the time of writing this report, part of the outcomes of this research, are being implemented through Australian Urban Research Infrastructure Network (AURIN): Housing affordability demonstrator project.

- v). The LAIFH identified the need for monitoring the performance of housing outcomes as a way of completing an iteration loop. The scope of this research did not enable further investigation into the best methods or measures to do this. It is therefore suggested that investigation of appropriate metrics for measuring the outcomes should be developed. To this end, there is a lot of scope for studies to develop indexes to measure housing outcomes: sustainability, affordability, liveability, and productivities, in the context of land management.
- vi). The value of the framework developed could also be extended to analyse other land intensive sector like transportation and land use planning.

8.5 Research conclusion

Research investigations and empirical studies throughout this thesis demonstrated interrelated and a complex range of inter-agency integration issues affecting land delivery for housing production. The focus, however, has been to improve inter-agency interaction to facilitate linked processes of ownership and development rights.

The research problem in section 1.2 of this thesis identified that *‘the existing ineffective and inefficient integration of agencies across the land administration functions (land tenure, land value, land use and land development) and between different levels of government impedes land delivery for housing production’*.

The research has confirmed that this problem continues to exist in the two case study areas, albeit in varying degrees. It was also revealed that there was a limited linked process to support land delivery for housing and that the associated challenges were contextual. A key conclusion of this study is that policies are not sufficiently informed by evidence and that due to a disconnect between agencies, policies formulated do not stimulate integrated processes among land agencies and that the processes do not

sufficiently drive the type of data that is collected. It thus recommends that managing land for housing production should follow the principles of evidence-informed policy, policy-based processes and process-driven data.

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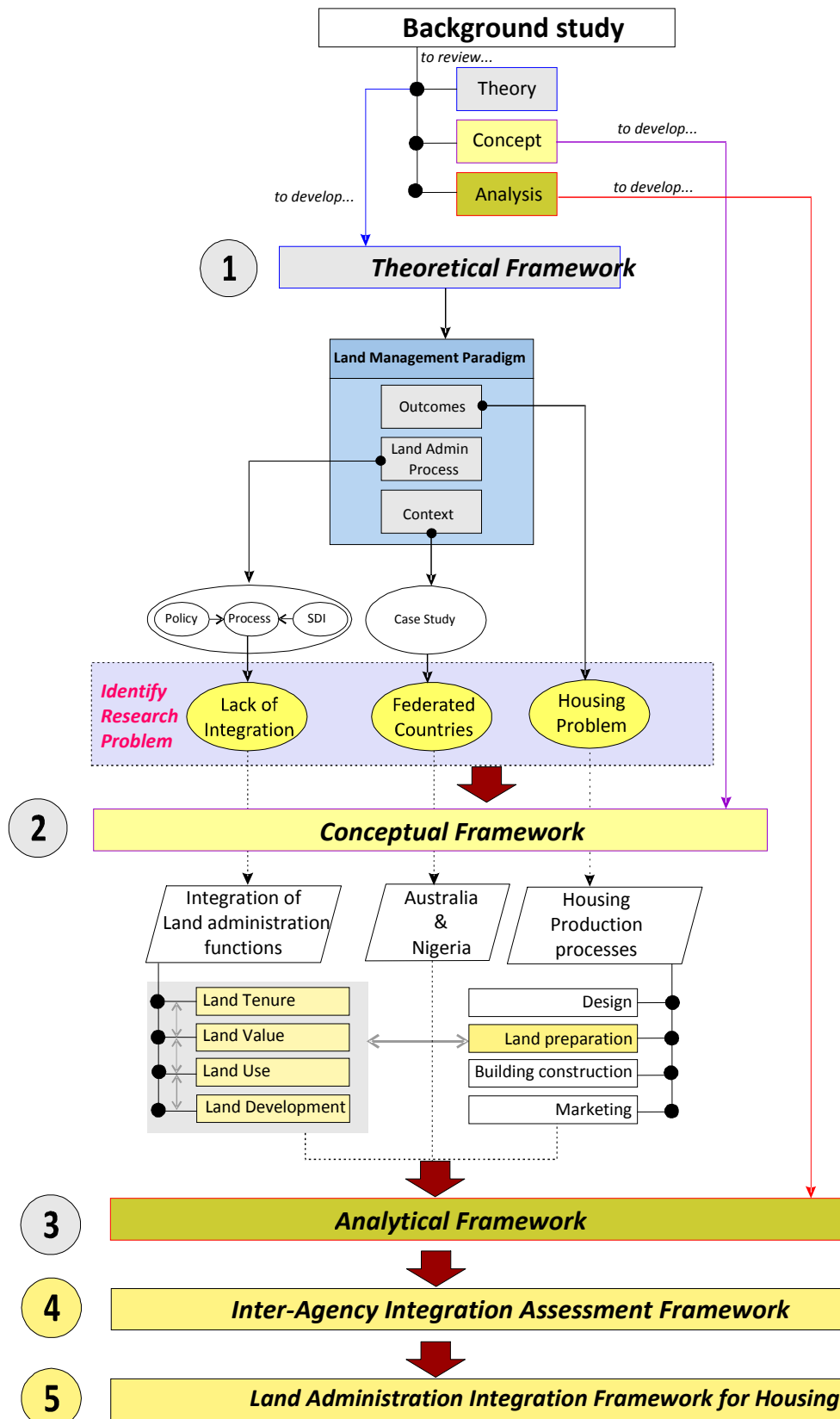
Appendix I: Publications

The author has published or contributed to the following publications during the course of the PhD research:

1. **Agunbiade, M.**, Rajabifard, A., and Bennett, R. (2012a). Modes of housing production in developing countries: the contemporary role of land, labour, and capital in Lagos, Nigeria. [Published online in the *Journal of Housing and the Built Environment*] <http://www.springerlink.com/content/r376lk014308p214/>
2. **Agunbiade, M.**, Rajabifard, A., and Bennett, R. (2012b). The dynamics of city growth and the impact on urban land policies in developing countries. *International Journal of Urban Sustainable Development* 4(2), 146-165.
<http://dx.doi.org/10.1080/19463138.2012.694818>
3. **Agunbiade, M.**, Rajabifard, A., and Bennett, R. (2012c). Spatially Enabling Urban Planning for Housing Production in Australia: An Imperative for Evidence-informed Policy: 6th Australasian Housing Researchers' Conference 8-10th February 2012. Adelaide, South Australia [Published as peer reviewed]
4. **Agunbiade, M.**, Rajabifard, A., and Bennett, R. (2012d). *An imperative of e-planning in integrating land administration functions for housing production*: Presented at the XXII International Society for Photogrammetry & Remote Sensing Congress, Melbourne 2012.
5. **Agunbiade, M.**, Rajabifard, A., and Bennett, R. (2011). Land Administration for Housing Production: Drivers, Concepts, and Analytical Tools. Paper presented at the FIG Working Week 2011. Conference [Published as peer reviewed].
6. **Agunbiade, M.** (2010). Land Administration for Housing Production in the context of SDI. *Spatial Data Infrastructure Asia and the Pacific Newsletter*. August, 2010. Vol.7, pp3-4 [Newsletter - published short article]
7. **Agunbiade, M.** (2012). SDI: an essential element in the trilogy of inter-agency integration for housing production. *Spatial Data Infrastructure Asia and the Pacific Newsletter*. February 2012, Vol. 9, No. 2 pp3-4. [Newsletter -published short article]
8. Wallace, J., Marwick, B., Bennett, R., Rajabifard, A., Williamson, I., Tambuwala, L., Potts, K., and **Agunbiade, M.** (2010), Spatially Enabling Land Administration: Drivers, Initiatives and Future Directions for Australia. In, Rajabifard, A., Cromptvoets, J., Kalantari, M. and Kok, B. (Eds) (2010) *Spatially Enabling Society: Research, Emerging Trends and Critical Assessment*. Leuven University Press, pp 175-190

Appendix II: Research Work Flow

The workflow indicates the step-by-step procedure that led to the development of Land Administration Integration Framework (LAIFH).



The Conceptual Framework provides a comprehensive approach to understand the relationship between land administration and housing production. The inter-Agency Integration Assessment Framework (IIAF) assesses levels of inter-agency integration in the context of housing production and the Land Administration Integration Framework (LAIFH) provides strategy to improve inter-agency integration.

Sequencing of the research processes: the work flow

The research started by asking one fundamental question: How does Land Administration support housing? To answer this we will need to develop a conceptual understanding from literature review. However, as revealed through the literature not only tenure security, but, Land Administration processes is important, so integration becomes essential!! > Ok, let us test this > but, there is no framework to test integration in Land Administration > let us build one then (IIAF). > Ok, the IIAF is built from theories and some basic testing was performed>. Ok, let us now test it on Australia and Nigeria. >Test completed – found out some interesting things about Australia and Nigeria, and whether the framework works > but, do the findings link back to Land Administration for housing? > Well, yes. They tell us about current levels of integration and because we understand the contexts, we can see how this impact housing situation. We also learnt about optimal levels desired – quite surprising. > After that – some generic strategies was developed (LAIFH) - these are a mix of hypothesis and scientific proof. > It was also possible to demonstrate what, if implemented, the framework might result in through the demonstrators.

So, after everything, it was possible to explore how Land Administration relates to housing, how we can measure it, what housing outcomes different Land Administration regimes result in, and how we might go about improving housing outcomes through Land Administration.

Appendix III: Pre-Survey Letters

Pre-survey letters were sent to the research participants to familiarise them of the intending survey and to initiate the nomination of a senior member of the organisation to participate in the research. Find a copy below:

This is to invite you to participate in a research titled: **Land Administration for Housing Production**. The research is part of an Australian Research Council linkage project in collaboration with some industry partners: Land Victoria, Land and Property Management Authority - New South Wales, Landgate - Western Australia and PSMA Australia Limited. It is being conducted at the Centre for Spatial Data Infrastructure and Land Administration within the department of Infrastructure Engineering (formally department of Geomatics, University of Melbourne).

The focus of this research within the research cluster is the understanding of the inter-relationship between land administration functions (land tenure/registration, land value, land use and land development) in facilitating land delivery for housing production. This study is framed within the proposition that improved integration across land administration functions and between different levels of government will facilitate integration of functions and processes and thus optimises land delivery for housing production and urban development. To facilitate this, the research proposes that there is a need for effective collaboration of institutions and organisations as well as integration of their functions and processes across different levels of government.

The study aims to gather some basic information that will assist in a better understanding of the current role of different groups that form a part of the bigger 'community' of land delivery for housing production and urban development in Victoria in particular and Australia in general.

This e-mail is to seek your support and participation in the study, and requests the nomination of senior staff members of your council that deal with statutory, strategic and infrastructure planning for the survey. You are please requested to provide contact details (Phone and e-mail address) for the nominated staff member(s)

In the next e-mail, the nominated staff will be forwarded a survey link through which you will be asked to complete an on-line survey.

Thanking you in anticipation of your assistance and contributions.

Kind regards,

Muyiwa.
PhD research student
On behalf of the research team.

Appendix IV: Structured interview guide

Organisation: _____

Functions of Organisation _____

(You may prefer to attach some printed material).

Name and position (optional) _____

Classification of organisation (Tick the most appropriate one):

- | | | |
|---|--|---|
| <input type="checkbox"/> Central government | <input type="checkbox"/> State government | <input type="checkbox"/> Local government |
| <input type="checkbox"/> Government corporation | <input type="checkbox"/> Private sector enterprise | <input type="checkbox"/> Community organisation |
| <input type="checkbox"/> Other (please specify) _____ | | |

(A) Land Administration Processes [*Relationship with your organisation and other relevant organisations*]

1. How is your agency involved in the process of residential land release?
2. How significant is the issue of inter-agency collaboration and how does it impact on your organisation's performance?
3. What will you consider to facilitate effective inter-agency collaboration?
4. What are the significant barriers to effective inter-agency collaboration and spatial data sharing?
5. How do the following facilitate or impair collaborations between your organisation and other relevant departments and agencies and how can current situation be improved?
 - i). Communication
 - ii). Trust
 - iii). Organizational structure
 - iv). Relationship building between agencies
 - v). Power relations across functions and between different levels of government
 - vi). Resources of the agencies
 - vii). Commitments and responsibilities
 - viii). Public participation
 - ix). Capacity building and technical capabilities
 - x). Dispute resolutions
 - xi). Sharing and use of spatial data
 - xii). Quality and accessibility to spatial data
6. Can you think of other factors not listed in Q5 above?
7. Which aspect of integration [listed above including those you identified] most challenge the activities of your organisation and how can this be improved?
8. There seems to be inconsistencies (as revealed through academic studies, court and tribunal cases) in the strategic planning at the state level and the statutory implementation at the local level. What do you think is responsible for this? Is this suggesting lack of integration? Are these linked with the statutory roles of the different jurisdictions?

9. How do these affect the overall efficiency and effective performance of your organisation?
10. How can this be ameliorated?
11. Are there plans to review any of the policies of your organisation that deal with the inconsistencies especially as it related to land release?
12. What type of collaboration exists between your organisation and other levels of government [vertical interactions] in performing your statutory roles?
13. Can you briefly comment on power relations between your organisation and the other levels of government (federal, state and local)?

(B) Spatial Data Infrastructure

1. What are issues around *spatial data* as it relates to policy development and implementations within and outside your organisation?
2. Are you happy with the accuracy, standard and format of available data at your disposal at the moment? How? Why?
3. What specific data are required for your operations that are not readily available now?
4. What role for national data infrastructure to facilitate and enhance the performance of your organisation?
5. From your perspective, what role for national data information to facilitate and enhance the performance of federal, state and local governments in the delivery of land for housing?
6. What issues of interaction between your organisation and other agencies can you highlight in the area of:
 - Data collection:
 - Data sharing:
 - Data maintenance:
 - Data usage: is it just data sharing, or consultations? or collaboration?
7. What should be the obligations of planning and responsible authorities to provide access to relevant planning information and how should the relevant information be made available to ALL the users?
8. Should planning authorities or government be required to collect or enabled to collect certain data and for what purposed?

(C) Strategic and statutory Planning issues

1. How will you describe your interaction with the other departments and agencies at the conception and strategic planning for land delivery?
2. What will you consider the major emphasis of your organisation with regards to the overall triple bottom (economic, environmental and socio-political) sustainability objectives of government?
3. How will you rate the consultation proceedings that led to the adoption of the plan?
4. At the moment, there is a particular emphasis on consolidation of urban form through the State Planning Policy Framework in the spirit of implementing the metropolitan strategic plan. Yet, there seems to be insufficient data set on previously used land: derelict land, potential open land for infill development,

presently used land for other purposes which has better potential for residential development. What role for your organisation in facilitating this?

5. Is there any role for the merger of sales records valuation records and spatial data at parcel level to facilitate whole of government approach to the strategic planning of Victoria-Australia or Lagos-Nigeria (delete as appropriate)?

You are invited to participate in a research titled: Land Administration for Housing Production. The research project is being conducted by A/Prof. Abbas Rajabifard, Dr. Rohan Bennett and Mr. Muiyiwa Agunbiade of the Centre for Spatial Data Infrastructure and Land Administration, Department of Infrastructure Engineering (formerly Dept of Geomatics) at The University of Melbourne. This project has been approved by the Human Research Ethics Committee.

The aim of this study is to develop a national framework for assessing the level of collaboration and set of processes to improve integration across land administration functions (land tenure/registration, land valuation, land use and land development) and between all levels of government to facilitate land delivery for housing production. You are asked to participate by completing this questionnaire. Through the questionnaire you will be asked to provide some information about how your organisation collaborates with other agencies in the areas of policy, processes and data services; and how these affect land delivery for housing production. We estimate that the time commitment required of you should be between 30 and 40 minutes.

Please be advised that your participation in this study is completely voluntary. Should you wish to withdraw at any stage, or to withdraw any unprocessed data you have supplied, you are free to do so without prejudice. Due to small sample size, you might be identified as a participant. However, the confidentiality of the information you provide will be safeguarded, subject to any legal requirements. In addition, please note that if you are in a dependent relationship with any of the researchers your involvement in the project will not affect ongoing assessment and management.

By clicking 'Yes' button below you have accepted to participate in the survey.

Should you require any further information, or have any concerns, please do not hesitate to contact either of the researchers; A/Prof Rajabifard: +61 8344 0234, Dr. Rohan Bennett: +61 3 83449692 and Mr. Muiyiwa Agunbiade: +61-3-9344 6771. Should you have any concerns about the conduct of the project, you are welcome to contact the Executive Officer, Human Research Ethics, The University of Melbourne, on Tel: +61 3 8344 2073 or Fax: +61393476739.

* 1. I give my consent to participate

☐ Yes ☐ No

2. Definition of Terms

For the purpose of this study:

- Land Administration means the processes run by government using the public or private agencies to administer and manage land tenure/registration, land value, land use and land development.
- Cooperation means action or activities of agencies shared with inherent intention to benefit others. It involves no formal rule s, minimal resources, independent power, and not too clear goals.
- Coordination means harmonious combination or interaction of functions or processes between two or more organisations. It involves few rules, limited resources, some interdependency and clear agency goals.
- Collaboration means the mutually beneficial and well defined relationship entered into by two or more organisations to achieve common goals. This relationship includes a commitment to mutual relationships or goals, a jointly developed structure and shared responsibility; mutual authority and accountability for success; and sharing of resources and rewards. It involves high degree of formality, high resource commitment and inter-agency control.

3. Details of organisation

* 1. Name of your organisation?

* 2. Your Department or unit within the organisation?

* 3. Specific task(s) or function(s) of your department or unit?

* 4. Classification of your organisation (select the most appropriate)

☐ Federal government

☐ Government Corporation

☐ Community organisations

☐ State government

☐ Peak bodies/organisations

☐ Local government

☐ Private sector enterprise

Other (please specify)

4. Priority of organisation

1. To what extent is economic policy consideration a priority for your organisation in formulating its policy?

☐ Top priority

☐ Medium priority (in the top 10 priorities)

☐ High priority (in the top 3 priorities)

☐ Low priority

2. To what extent is the environmental policy consideration a priority for your organisation in formulating its policy?

☐ Top priority

☐ Medium priority (in the top 10 priorities)

☐ High priority (in the top 3 priorities)

☐ Low priority

3. To what extent is social policy consideration and citizen participation a priority for your organisation in formulating its policy?

☐ Top priority

☐ Medium priority (in the top 10 priorities)

☐ High priority (in the top 3 priorities)

☐ Low priority

*4. If State organisation, which of the objectives of State Planning Policy Framework is most relevant to your organisation? (Tick as many as you wish)

☐ A more compact city

☐ Better transport link

☐ Better management of growth

☐ A prosperous city

☐ Networks with the regional cities

☐ A fairer city

☐ A greener city

☐ Geographic strategies

* 5. What is your organisation's core land administration function?

- ☐ Registration of titles
- ☐ Allocating/organisation of land tenure
- ☐ Land valuation
- ☐ Land use planning, control and enforcement
- ☒ Land development

5. Identification of other organisations with relevant role

This section assesses different levels of collaboration between your organisation and the other relevant organisations in the areas of land administration, housing production and urban development.

- * 1. By selecting the corresponding approximate percentage of collaboration for all the relevant organisations, please indicate all the organisations among the ones listed below which have a role in land administration that affect the performance of [Q3] in facilitating land administration for housing production and urban development?

	>50%	25%-50%	<25%
Federal Ministry of Lands and Housing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Federal Ministry of Survey	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Federal Ministry of Transport	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nigerian Police	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nigerian Armed Forces	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lagos State Ministry of Housing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lagos State Ministry of Physical Plg and Urban Dev.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lagos State Ministry of Environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lagos State Ministry of Economic Planning and Budget	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lagos State Ministry of Transport	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Directorate of Survey	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Directorate of Lands	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
New Town Development Authority	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Urban Renewal Authority	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LAGIS	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lagos State Transport Mgt Authority (LASTMA)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
District Planning Offices	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Local Planning Offices	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
NITEL (Telephone)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PHCN (Electricity)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lagos State Min. of Sc. and Tech.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lagos State Water Corporation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Indigenous land owners (Omo Onile)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community based organisations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)			

- * 2. Please select one among the organisations listed above that has the most significant role in land administration for housing and urban development with [Q3]. (Please type, in the space provided below, the name of organisation for further assessment in the next sections)

6. Level of economic policy collaboration

Sections 6-21 measure the level of collaboration and the integration of processes between your organisation (especially within the scope of your department or unit) and the organisation you just typed in above. It focuses particularly on policy, land administration processes and data infrastructure/services

The indicators used are designed to determine present level of collaboration. They are classified in a scalable manner and calibrated from 0-6. 0 represents lack of collaboration and 6 represents high level collaboration between organisations.

- * 1. What is the present level of economic policy collaboration between [Q3] and [Q12]?

(Please tick only one box that appropriately measure this)

- ☐ (0) No known economic development integration strategies
- ☐ (1) Sharing economic policy direction only through publications
- ☐ (2) Willingness to align economic policy direction between agencies
- ☐ (3) Meetings to identify economic priorities between processes
- ☐ (4) Economic planning are constantly being tested and modified across processes
- ☐ (5) Timely dense inter-dependence with local business and the wider community
- ☐ (6) Incorporation of policy by reference through legislations (statutory)

2. Is your organisation ([Q3]) satisfied with the present level attained?

- ☐ Yes
- ☐ No

3. What level is desired for optimal performance?

- ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

7. Level of environmental policy collaboration

* 1. What is the present level of environmental management policy collaboration between [Q3] and [Q12]? (Please tick only one box that appropriately measure this)

- ☐ (0) No known environmental management integration strategies
- ☐ (1) Sharing environmental policy direction only through publications
- ☐ (2) Detailed environment policy assessment in consultation with other agencies
- ☐ (3) Meetings to identify projects of significant environmental impact between processes
- ☐ (4) Undertake joint review of policies that have significant environmental impact
- ☐ (5) Partnership agreement with local business and the wider community
- ☐ (6) Incorporation of policy by reference through legislations (statutory)

2. Is your organisation ([Q3]) satisfied with the present level attained?

- ☐ Yes
- ☐ No

3. What level is desired for optimal performance?

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6

8. Level of social policy collaboration

* 1. What is the present level of social policy collaboration between [Q3] and [Q12]? (Please tick only one box that appropriately measure this)

- ☐ (0) No policy integration between organisations
- ☐ (1) Existing policies between agencies can be inferred only through existing legislations
- ☐ (2) Defined policy exists between organisations but are not consistent
- ☐ (3) A comprehensive policy integration exist between organisations
- ☐ (4) A comprehensive policy consistency across functions and agencies
- ☐ (5) Land policy is developed in a participatory manner
- ☐ (6) Whole of government approach to policy formulation and implementation

2. Is your organisation ([Q3]) satisfied with the present level attained?

- ☐ Yes
- ☐ No

3. What level is desired for optimal performance?

☐ 0

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

☐ 6

9. Institutional Processes: Level of communication

* 1. What is the present level of communication (in terms on institutional processes) between [Q3] and [Q12]?

(Please tick only one box that appropriately measure this)

☐ (0) No communication

☐ (1) Communication is focused on individual organisation

☐ (2) Initiatives and dialogue maintained between organisations

☐ (3) Structured communication flows between processes

☐ (4) Building of interdependent relationship

☐ (5) Collective bargaining to facilitate better communication across agencies and processes

☐ (6) Open and interactive communication flows between all

2. Is your organisation ([Q3]) satisfied with the present level attained?

☐ Yes

☐ No

3. What level is desired for optimal performance?

☐ 0

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

☐ 6

10. Institutional Processes: Types of organisational structure

* 1. What type of organisational structure exists between [Q3] and [Q12]?

(Please tick only one box that appropriately measure this)

☐ (0) Informal

☐ (1) Stand alone

☐ (2) Centralized

☐ (3) Distributed - team structure

☐ (4) Inter organisational network focusing on product

☐ (5) Cross functional team linking functional expertise

☐ (6) National network structure linking function and product

2. Is your organisation ([Q3]) satisfied with the present level attained?

☐ Yes

☐ No

3. What level is desired for optimal performance?

☐ 0

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

☐ 6

11. Institutional Processes: Sharing of resources

* 1. How are the resources between [Q3] and [Q12] shared?

(Please tick only one box that appropriately measure this)

☐ (0) Remain own not shared

☐ (1) Minimal resource commitment

☐ (2) Informal rules guiding resource sharing

☐ (3) Shared resources around project

☐ (4) Interdependent use of resources between organisations

☐ (5) Strong formal rules guiding resource sharing

☐ (6) Pooled, collective resources

2. Is your organisation ([Q3]) satisfied with the present level attained?

☐ Yes

☐ No

3. What level is desired for optimal performance?

☐ 0

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

☐ 6

12. Institutional Processes: Commitments and responsibilities

* 1. What is the level of commitment and responsibility of staff to institutional processes between [Q3] and [Q12]?

(Please tick only one box that appropriately measure this)

- ☐ (0) Staff not willing to interact
- ☐ (1) Staff willingness to collaborate only within the organisation
- ☐ (2) Staff willingness to collaborate with other organisations is not based on formal rules
- ☐ (3) Staff willingness to collaborate with other organisations is based on few formal rules
- ☐ (4) Staff willingness to collaborate with other organisations is driven by interdependence of agency goals
- ☐ (5) Staff willingness to collaborate with other organisations is based on strong formal rules of engagement
- ☐ (6) Incorporation of activities by reference (referral)

2. Is your organisation ([Q3]) satisfied with the present level attained?

- ☐ Yes
- ☐ No

3. What level is desired for optimal performance?

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6

13. Institutional Processes: Capacity building

* 1. What is the present level of capacity building between [Q3] and [Q12]?

(Please tick only one box that appropriately measure this)

- ☐ (0) Lack of appropriate expertise hinders collaboration
- ☐ (1) Only intra organisation exchange of skilled staff
- ☐ (2) Have similar professional training, identity, or orientation between organisations
- ☐ (3) Inter organisation transfer of skilled staff
- ☐ (4) Task reallocation to more effective and efficient specialists, located in specialized organisation
- ☐ (5) Regularly allocating tasks to more effective and efficient specialists, centrally coordinated
- ☐ (6) Inter-organisation exchange of skilled staff to empower the society

2. Is your organisation ([Q3]) satisfied with the present level attained?

- ☐ Yes
- ☐ No

3. What level is desired for optimal performance?

- ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

14. Institutional Processes: Dispute resolution

* 1. What strategies for dispute resolution between [Q3] and [Q12]?

(Please tick only one box that appropriately measure this)

- ☐ (0) No known dispute resolution strategy
- ☐ (1) Responsibility for conflict management at different levels is clearly assigned within organisation
- ☐ (2) Responsibility for conflict management at different levels is clearly assigned between organisations
- ☐ (3) Relevant bodies take initiatives and maintain dialogue
- ☐ (4) Relevant bodies are competent in applicable legal matters within organisations
- ☐ (5) Stimulate more creative problem-solving strategies among organisations
- ☐ (6) Shared responsibilities for dispute resolution among organisations

2. Is your organisation ([Q3]) satisfied with the present level attained?

- ☐ Yes
- ☐ No

3. What level is desired for optimal performance?

- ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

15. Institutional Processes: Public participation

* 1. How does [Q3] collaborate with the public (Public participation) to make informed decisions with regard to urban development issues especially land administration and housing?

(Please tick only one box that appropriately measure this)

- ☐ (0) Non participation
- ☐ (1) Informing
- ☐ (2) Consultation
- ☐ (3) Placation
- ☐ (4) Partnership
- ☐ (5) Delegated power
- ☐ (6) Citizen control and power

2. Is your organisation ([Q3]) satisfied with the present level attained?

☐ Yes

☐ No

3. What level is desired for optimal performance?

☐ 0

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

☐ 6

16. Data infrastructure and services: Data creation collection format

* 1. What data collection format (data creation) exists between [Q2] and [Q12]?
(Please tick only one box that appropriately measure this)

☐ (0) Specialised data format usable only internally within organisation

☐ (1) PDF swapping

☐ (2) Data methodically collected among organisations

☐ (3) Relational data files in excel

☐ (4) Geo-coded dataset overlay and referencing

☐ (5) Seamless interactive, rich and regularly updated data

☐ (6) Real time data collection across organisations and processes

2. Is your organisation ([Q2]) satisfied with the present level attained?

☐ Yes

☐ No

3. What level is desired for optimal performance?

☐ 0

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

☐ 6

17. Data infrastructure and services: Data coordination and information flow

* 1. How are data and information flow coordinated between [Q2] and [Q12]?
(Please tick only one box that appropriately measure this)

- ☐ (0) Information flow is restricted within individual agency
- ☐ (1) Data awareness: information is published in a medium that could be shared
- ☐ (2) Specifically required information is shared between agencies
- ☐ (3) Project specific information is sheared between processes
- ☐ (4) Linkages among data management units with rules guiding privacy and copyright
- ☐ (5) Interactive data management strategies to overcome legal issues
- ☐ (6) Dense Network of information flow across functions and agencies

2. Is your organisation ([Q2]) satisfied with the present level attained?

- ☐ Yes
- ☐ No

3. What level is desired for optimal performance?

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6

18. Data infrastructure and services: Storage and Maintenance of data

* 1. How are data stored and maintained between [Q2] and [Q12]?
(Please tick only one box that appropriately measure this)

- ☐ (0) Internally within each organisation
- ☐ (1) Independently shared responsibilities
- ☐ (2) Consultation among [Q2] and [Q12] to ensure good quality
- ☐ (3) Coordination between [Q2] and [Q12] processes to ensure accuracy and currency
- ☐ (4) Eliminating non-optimal duplication between [Q2] and [Q12]
- ☐ (5) Value added in a collective way to make it reusable
- ☐ (6) Data and information are jointly stored and maintained

2. Is your organisation ([Q2]) satisfied with the present level attained?

- ☐ Yes
- ☐ No

3. What level is desired for optimal performance?

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6

19. Data infrastructure and services: Technology and technical issues

* 1. What strategies for collaboration of technology and technical issues between [Q2] and [Q12]? (Please tick only one box that appropriately measure this)

- ☐ (0) Available technology is customised for internal use only
- ☐ (1) Organisations open to external developments
- ☐ (2) Consultations between organisations to identify common application
- ☐ (3) Coordination of processes between agencies to identify common applications
- ☐ (4) Interdependent application across processes
- ☐ (5) Agreement on access networks and standards
- ☐ (6) Nationally compatible application network

2. Is your organisation ([Q2]) satisfied with the present level attained?

- ☐ Yes
- ☐ No

3. What level is desired for optimal performance?

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6

20. Data infrastructure and services: Funding/pricing model

* 1. What data services funding/pricing model exist between [Q2] and [Q12]?
(Please tick only one box that appropriately measure this)

- ☐ (0) Cost borne by individual organisation
- ☐ (1) Informal sharing of cost among organisations
- ☐ (2) Structured sharing of cost among organisations
- ☐ (3) Cost shared between processes
- ☐ (4) Cost shared between processes guided by specific rules
- ☐ (5) Sequencing of financing mechanisms
- ☐ (6) Datasets as public good (Free - no cost)

2. Is your organisation ([Q2]) satisfied with the present level attained?

- ☐ Yes
☐ No

3. What level is desired for optimal performance?

- ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

21. : Data infrastructure and services: Datasets dissemination and use

* 1. How do you disseminate and use spatial datasets between your organisation and [Q12]? (Please tick only one box that appropriately measure this)

- ☐ (0) Internally available only in silos (not shared)
☐ (1) Information is shared minimally
☐ (2) Tactical information sharing
☐ (3) Projects' related and directed information sharing
☐ (4) Information available to other institutions on-line
☐ (5) Data are shared across organisations in real time
☐ (6) Nationally web enabled real-time datasets

2. Is your organisation ([Q2]) satisfied with the present level attained?

- ☐ Yes
☐ No

3. What level is desired for optimal performance?

- ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

4. Any additional comments will be most welcome

Appendix VI: Agencies' functions

Diversity of tasks among (studied) Land and housing agencies in Australia

Cases Studied	The corresponding tasks
1	Helping community groups work together to develop services, projects and programs for the community compile local intelligence so that policies, programs and projects are developed and reviewed to reflect local needs
2	Support or deliver selected DPCD programs locally coordinate DPCD community investments.
3	Lead and coordinate the development and implementation of whole of initiatives directed to closing the gap between indigenous and non indigenous Victorians.
4	Ensure progress against key Victorian indigenous affairs framework and council of Australian s (COAG) indicators for closing the gap.
5	oversight - community consultation and engagement arrangements
6	Ensure Victoria takes a strategic and coordinated approach to the COAG indigenous reform agenda. Support the ministerial taskforce on aboriginal affairs to undertake its role and functions.
7	Administer the Melton shire planning scheme
8	Administration of the planning scheme policy development and rezoning economic development
9	Application assessment
10	application assessment and decisions
11	assessment of property value
12	assisting to promote, evaluate, plan and invest in infrastructure and by fostering an efficient, sustainable, competitive, safe and secure transport system.
13	collection and analysis of land use.
14	compulsory acquisition purchase of land for road related projects and management of land assets
15	cross over to roadl zone
16	dev plan approval
17	development of precinct; development plan; strategic planning of growth areas
18	development permit
19	development policy scheme amendments subdivision and strategic planning
20	effective utilisation of land for urban development precinct development
21	land use and development policies planning scheme amendments plan and strategies in relation to land use and development (i.e. structure plan) heritage studies
22	land use and zoning planning subdivision planning
23	land use development policies, scheme amendments, subdivision plan
24	Maintaining and improving Victoria's statutory planning system.
25	planning, urban design, project management, place management, etc
26	policy development to ensure that on road activities and adjacent land use activities do not compromise operational efficiency of the road or road safety
27	population policy; housing affordability; urban environment
28	preparation of strategic land use plan preparation of planning policy and amendments to the planning scheme to introduce new local policy controls community consultation engagement strategies
29	prepare and manage land for development review planning schemes strategic planning advise to developers
30	processing of applications for planning permits and other processes as governed by the planning and environment act processing of applications for certification and other processes as governed by the subdivision act council

	representation at VCAT processing of application pursuant to council's local law in relation to vegetation removal enforcement of application pursuant to the planning and environment act advice to council and council's strategic planning department on planning policy development and review
31	provide strategic planning advice, administrator planning scheme amendments, develop strategies, plan and policies.
32	research, strategy planning, housing strategy
33	scheme amendments subdivision land use development and planning
34	scheme amendments strategic land use and policy planning subdivision planning
35	spatial analysis and research unit in DPCD. It consists of 5 major groups: 1: housing research 2: demographic analysis 3: sustainability 4: regional analysis 5: industrial and commercial analysis
36	statutory planning functions. assessment of planning applications
37	strategic land use planning, environmental management, open space and recreation planning
38	strategic land use planning, planning scheme management, policy development
39	strategic land use policy development and implementation
40	strategic land use projects, administering planning scheme amendments, planning of growth areas and new residential suburbs etc.
41	strategic planning sub division land use zoning
42	sub decision and zoning planning strategic planning
43	subdivision plan strategic planning land use development scheme amendment
44	the development of service delivery policy and provides access to social, health and other payments and services
45	The MAV performs six key functions: 1). Advocacy: representation of the needs and interests of the sector with other levels of and with other key stakeholders 2). Capacity building: working actively with councils to support them to improve how they operate in communities, particularly where there is significant change or new requirements 3. Networking: coordination, hosting and/or sponsorship of opportunities for the sector (or parts of the sector with common interests) to come together to share knowledge and experiences and plan responses 4). Policy development: setting of standards for the sector and developing the policies and the sector-wide regulations and codes needed in order to deliver service enhancement; financial and economic health; and social capital. 5). Professional development: human resources support and training and education programs that develop the understandings and skills of both councillors and staff 6). Awareness raising: research and analysis leading to information dissemination and awareness raising promotions and campaigns.
46	Titles office, surveyor general, Valuer general
47	To make housing more available and to reduce homelessness, through programs and services, benefits and payments, and grants and funding for organisations providing services to provide housing and reduce homelessness
48	To monitor housing demand, supply and affordability in Australia, and to highlight current and potential gaps between housing supply and demand from households
49	To review, prepare, manage (and to a lesser extent implement) long term land use and development policies and plan for the city of Knox. To review the Knox planning scheme and developing new policy documents and strategies to ensure that planning, investment and decision making for the city is relevant to the needs of the community and provides a sustainable base for future generations. To provide strategic planning advice to other areas of council and the community.
50	To rezone land, apply overlays to land, to write and amend policies relating to the use and development of land.
51	To undertake strategic land use planning for suburbs and townships our municipality including the preparation of structure plan, township strategies, land use policies and planning scheme amendments.
52	Town planning - permits approval
53	Undertaking planning scheme amendments including rezoning of land and planning scheme updates. provide land use direction the municipality

Diversity of tasks among (studied) Land and housing agencies in Nigeria

Cases Studied	The corresponding Tasks
1	Processing of governor's consent to transactions on land landed property. valuation of land; landed property for different purposes -compensation matters appropriation of land for public use
2	Granting approval to residential and commercial layout plan securing the appropriate right of way and identifying structures proposed alignment for road expansion and developments. Provision and resettlement of individual buildings or communities affected. Preparing development guide plan for excised villages.
3	Post development audit of physical structures state treating of public petitions on physical development 3. public intervention /mediation on controversial physical development issues
4	Preparation and design of new developmental schemes site selections for both public and private estate developers monitoring of illegal use, change of use and encroachments schemes
5	1).Establishment of electronic document mgt system-digital capturing, processing and archival of approved building plan files and other state executed projects; 2).automation of development processing systems GIS integration; establishment of spatial database and land use data
6	Allocation of state lands processing of certificate of occupancy management of ground rent etc
7	Approval of layout plan and plan preparation
8	Auditing of physical development/ structure (single buildings, clusters and estate) against approved development permit.
9	Automation of development permit archival and retrieval of approved building plan
10	Charting areas to determine status; production of perimeter survey
11	Costing and design of layout; provision of infrastructure
12	Determination of area of need for scheme
13	Effective use and application of geospatial information; provide effective inventory and monitoring of the environment; serve as additional platform for the building of information database,
14	Formulation of policies and setting standards for housing; formulating, monitoring, implementation, evaluating and reviewing policies; coordinating activities of other agencies on housing
15	Granting of building plan approval
16	Granting of development permit for layout plan and architectural plan, reparation of layout plan, regional plan ,district plan and action plan
17	Identify and monitor areas qualified for upgrading; advice development programme
18	Implementation of land use plan,
19	Land use plan and granting of building plan approval
20	Implementation of land use plan granting of building plan approval,
21	Layout approval for both and private land
22	Layout design and planning assessment of suitability of site for urban development promotion of large scale physical development site selection for other ministries and private developers development control
23	Layout plan approvals strategic planning of local plan
24	Monitor, identify areas qualified for upgrading advice the on redevelopment or renewal programmes holding admin and maintaining properties
25	Preparation of all levels of development plan such as regional plan, master plan, structure plan, district and action plan. Monitoring of implementation of development plan. Site selection for various land uses.
26	Production of housing for mostly low income
27	Provision of buildings for staff
28	Provision of housing for low income group especially the civil servant

29	Ratification
30	Redeveloping urban decay areas, redeveloping of markets in the urban centre
31	Route planning and traffic management
32	Statutory planning
33	Strategic regional master plan broad land use plan for land use policy development
34	Supervision and implementation of national ICT policy
35	Survey of lands
36	Teaching and research
37	Title registration
38	To ensure interconnectivity of spatial databases consisting of fundamental and thematic datasets
39	Urban and strategic planning

Keyword: major functions of land administration and housing agencies



Appendix VII: Levels of inter-agency integration (Nigeria and Australia)

Summary: Levels of inter-agency integration - *Land management policies*

Measurement variables	Australia	Nigeria
Economic considerations	The willingness to align economic policy consideration was limited between agencies.	No evidence to support integration strategies for economic policy consideration among agencies
Environmental considerations	Environmental consideration was considered to be shared through publications while consultations were sometimes held among agencies.	No sufficient evidence to support that environmental consideration was given due priority among agencies.
Social considerations	There was a noticeable defined social policy consideration between most agencies but this was not considered consistent.	It was observed that existing social policies consideration between agencies can only be inferred through legislations.

Summary: Levels of inter-agency integration - *Land management processes*

Measurement variables	Australia	Nigeria
Communication between agencies	Overwhelming majority (62.7%) was of the opinion that initiatives and dialogue were maintained between organisations.	Some evidence exists that there were some measures of formal and mostly informal communication between organisations.
Public participation	Public was not sufficiently and adequately informed of governments' policy directions. What was generally considered as consultations were found to be essentially informing.	Public was not sufficiently and adequately informed of governments' policy directions.
Organizational structure	Evidence exists that some organisations operated on standalone basis. However, there were some inter organisational network structures that focused on product or projects.	Most organisations operated on standalone basis.
Commitments and responsibility	The willingness of most staff members to collaborate with other organisations was guided by few formal rules. It was, however, noted that responsibilities of each of the agencies needed to be clearly defined at the onset to facilitate effective collaboration.	Most of the agencies' commitments to collaborate were based on informal arrangement. There were no clear strategy to facilitate effective and structure commitment and responsibilities.
Resources of the agencies	Resources were shared around project and these were usually guided mostly by few formal rules.	Often, resources were not shared among agencies except when legislated.
Dispute resolutions	Some of the organisations opined that there were no known dispute resolution strategies. Where such strategies existed they were generally limited within each of the organisations.	Essentially, there were no known dispute resolution strategies in most organisations. Where such strategies existed these were generally limited within each of the organisations.
Capacity building	Some of the agencies (45%) shared similar	Intra organisation exchange of skilled staff

	professional training identity and orientation. This was an important part of building skills levels in the collaboration process.	were common, while similar professional training, usually brought agencies together. There were noticeable challenges regarding human capital development.
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Summary: Levels of inter-agency integration - *Data infrastructures and Management*

Measurement variables	Australia	Nigeria
Data creation: collection format	Data were collected primarily with the intent of its usage internally. However, given the level of digital data usage, and the stipulated data standards by ANZLIC, some agencies were collecting data at a level that would allow geo-coding, overlay and referencing for spatial enablement.	Some of the agencies were collecting data in a format that are only useable internally within their respective agency. Where there are similarities or overlap of functions data are collected with a mind to share this when appropriate. Most of these at the moment could not be spatially enabled. Lagos GIS enterprise was launched in 2011 to resolve the identified problems.
Data coordination and information flow	Project specific information is shared between processes. Linkages among data management units are guided by rules regarding privacy and copyright.	Information flow was restricted mostly within individual agency. However, when data are required for particular project, there were specific arrangements to facilitate this. There were no significant concerns regarding privacy issues.
Storage and Maintenance of data	Standards and metadata are considered a lower priority for local governments but critical for state and commonwealth governments who merge data for data discovery. There were noticeable ongoing consultations among agencies to ensure good quality.	This remained a major challenge as there was no operational geo-spatial policy to coordinate this.
Technology and technical issues	Most often available technology is customised for internal use only. However, there were noticeable ongoing consultation among agencies to identify common application	Contrary to popular perception, technology and technical issues are not considered a deterrent to the adoption of spatial technology
Data services funding/pricing model	Cost of data infrastructure was significantly borne by individual agency. This is considered to make access and pricing policies significant factors in the development of collaborative arrangements.	Most often, cost was borne by individual agency.
Spatial datasets dissemination and use	Loss of control was often a major issue in sharing of data.	Datasets were generally not well coordinated which make sharing difficult. In addition there were issues around confidentiality of official data.

Appendix VIII : Summary of the key actors in the planning process and their roles - Australia

Level of government	Roles
Central or national government	<ul style="list-style-type: none"> • Invoke federal/national law, only where the situation warrants. • Mobilize the relevant government agencies to undertake, commission, and supervise planning. • Provide funding or support for accessing international funding. • Provide specialized technical expertise if required. • Ensure public investments conform to plans and codes.
State or provincial government	<ul style="list-style-type: none"> • Provide legal mandate for the plans. • Create the policy environment in which the plans are prepared. • Mobilize the relevant government agencies, including regional entities, to guide and support the planning process. • Provide technical expertise as required. • Provide funding or support for accessing funding. • If regional planning is required, carry out the planning process.
Local government	<ul style="list-style-type: none"> • Carry out the planning process at the local level. • Create structures to enable meaningful community participation. • Be committed to implementing plans prepared with community participation. • Approve plans and establish the regulatory framework for implementation. • Carry out communications campaigns and training programs to ensure compliance with plans and codes. • Review and approve building plans, enforce building codes and land use regulations, carry out inspection, and administer sanctions.
Community (affected people as well as larger community)	<ul style="list-style-type: none"> • Participate in the land use, physical, and strategic planning processes. • Develop a collective vision for the future of the community. • Arrive at consensus on policy issues that cut across communities. • Where relevant, prepare community-level detailed plans in conformity with larger policies. • The case study on the 2004 Indian Ocean tsunami in Aceh, Indonesia, below, describes how communities took the lead in remapping land parcels as the first step in a wide-ranging process to formalize land ownership.
Project facilitators (planners, nongovernmental organizations [NGOs], and other intermediaries)	<ul style="list-style-type: none"> • Interpret government policies to set out the agenda for planning. • Educate the community on planning imperatives and the policy framework. • Interpret technical information and offer viable choices to government and communities to enable informed decision making. • Develop and carry out projects that comply with plans and codes.
Technical experts	<ul style="list-style-type: none"> • Carry out technical investigations, data collection, and analysis to support planning. • Develop technical recommendations and options. • Assist with implementation of plans and codes.

Source: <http://www.housingreconstruction.org/housing/Chapter7>

The actual distribution of roles depends on the existing legal and institutional frameworks as well as the actual capacity at the local government level.

Appendix IX

National Objective and Criteria for Future Strategic Planning of Capital Cities in Australia

Objective

To ensure Australian cities are globally competitive, productive, sustainable, liveable and socially inclusive and are well placed to meet future challenges and growth.

Criteria

Capital city strategic planning systems should:

1. be integrated: -
 - a. across functions, including land-use and transport planning, economic and infrastructure development, environmental assessment and urban development, and
 - b. across government agencies;
2. provide for a consistent hierarchy of future oriented and publicly available plans, including:
 - a. long term (for example, 15-30 year) integrated strategic plans,
 - b. medium term (for example, 5-15 year) prioritised infrastructure and land-use plans, and
 - c. near term prioritised infrastructure project pipeline backed by appropriately detailed project plans;
3. provide for nationally-significant economic infrastructure (both new and upgrade of existing) including: -
 - a. transport corridors,
 - b. international gateways,
 - c. intermodal connections,
 - d. major communications and utilities infrastructure, and
 - e. reservation of appropriate lands to support future expansion;
4. address nationally-significant policy issues including: -
 - a. population growth and demographic change,
 - b. productivity and global competitiveness,
 - c. climate change mitigation and adaptation,
 - d. efficient development and use of existing and new infrastructure and other public assets,
 - e. connectivity of people to jobs and businesses to markets,
 - f. development of major urban corridors,
 - g. social inclusion,
 - h. health, liveability, and community wellbeing,
 - i. housing affordability, and
 - j. matters of national environmental significance;

5. consider and strengthen the networks between capital cities and major regional centres, and other important domestic and international connections;
6. provide for planned, sequenced and evidence-based land release and an appropriate balance of infill and greenfields development;
7. clearly identify priorities for investment and policy effort by governments, and provide an effective framework for private sector investment and innovation;
8. encourage world-class urban design and architecture; and
9. provide effective implementation arrangements and supporting mechanisms, including:
 - a. clear accountabilities, timelines and appropriate performance measures,
 - b. coordination between all three levels of government, with opportunities for Commonwealth and local government input, and linked, streamlined and efficient approval processes including under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999,
 - c. evaluation and review cycles that support the need for balance between flexibility and certainty, including trigger points that identify the need for change in policy settings, and
 - d. appropriate consultation and engagement with external stakeholders, experts and the wider community.