THE NATIONAL RESEARCH INSTITUTE
PAPUA NEW GUINEA

DISCUSSION PAPER

PROSPECTS AND CHALLENGES IN PRIVATE SECTOR PROVISION OF HOUSING IN PAPUA NEW GUINEA: LESSONS FROM EDAI TOWN DEVELOPMENT

Eugene E. Ezebilo
Lucy Hamago

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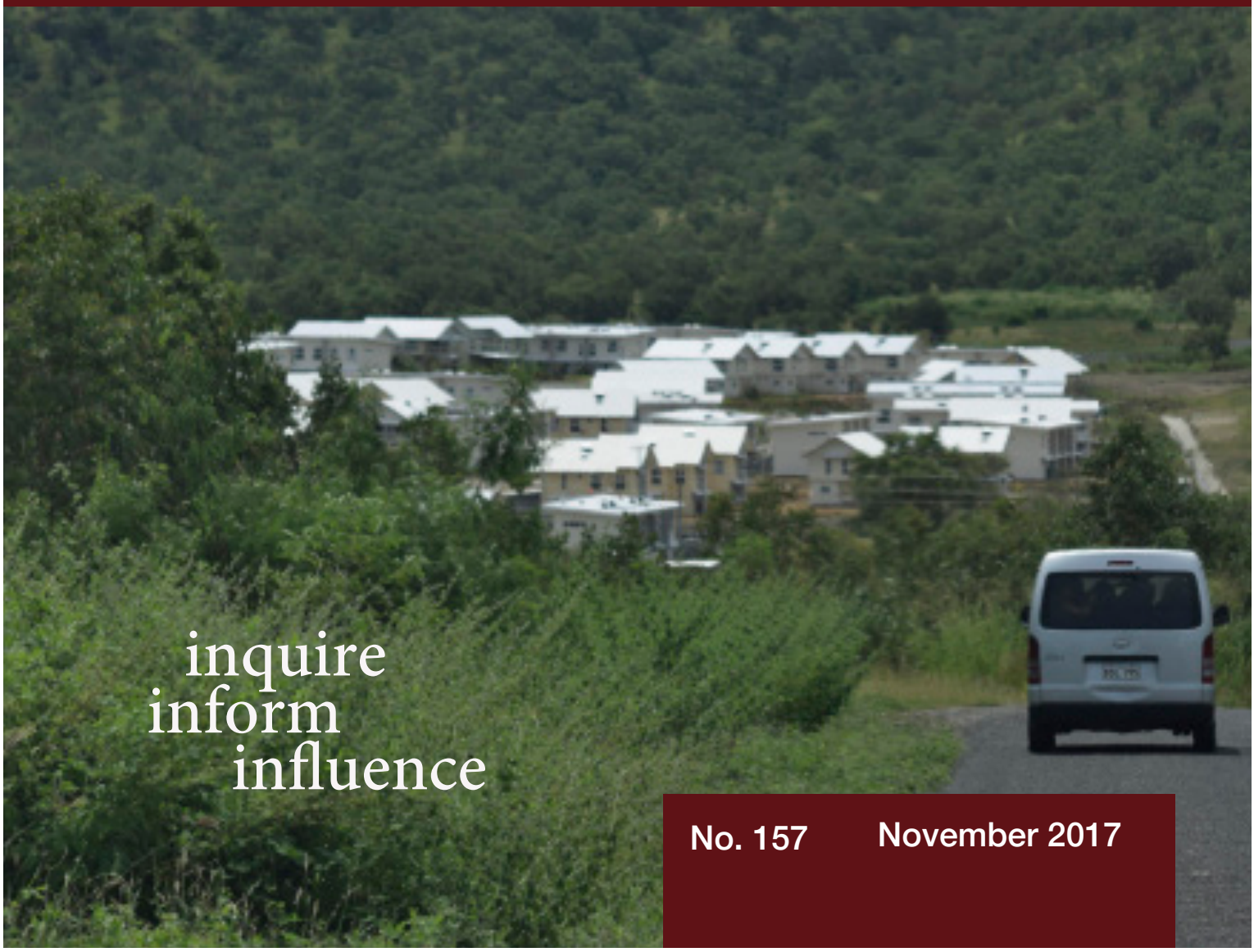

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Abbreviations & Acronyms

- ETDL: EDAI Town Development Limited
- FHOS: First Homeownership Scheme
- GST: Goods and Service Tax
- ICCC: Independent Consumer and Competition Commission
- ILG: Incorporated Land Group
- NHC: National Housing Corporation
- NHEL: National Housing Estate Limited
- PNG: Papua New Guinea
- PPP: Public-Private Partnership
- SME: Small and Medium Enterprises
- UDL: Urban Development Lease
- VCLR: Voluntary Customary Land Registration

Abstract

The private sector is often more efficient and effective in the provision of housing than the public sector. It can also provide the state with more opportunities to shift resources from housing to other sectors of the economy that require urgent attention. However, there are only a few large scale private property developers that provide housing in Papua New Guinea (PNG). This paper reports on a study of the provision of housing by a private property developer in Port Moresby, challenges associated with it and its coping strategy. It was also to explore potential strategies to motivate private property developers to build more affordable houses. Data were obtained using face-to-face interviews that involved directors and a manager of EDAI Town Development Limited (ETDL). The results show that ETDL provides trunk infrastructure such as clean portable-borne water, sewerage, a good road network and electric power, which are the responsibilities of the state. The ETDL has a framework for maintenance of the trunk infrastructure and has built 144 houses, all of which have been sold. The sales price of the houses, including Goods and Services Tax (GST), range from 294,800 PNG Kina (US$89,333) to 803,000 PNG Kina (US$243,333). The results revealed that the challenges faced by ETDL in the provision of housing include shortages of skilled labour, the high cost of house building materials, delays in the approval of building plans by the Building Board, difficulties in accessing loans from financial institutions, lack of trunk infrastructure and inadequacies of housing policy. Some strategies that ETDL have used to cope with the challenges include developing and carrying out maintenance works on trunk infrastructure, training workers on the job, purchasing house building materials in large quantities to benefit from wholesale prices, and developing house types that are in high demand. Private sector participation in the provision of housing in PNG could be promoted by streamlining the roles of public and private sectors in the provision of housing, providing trunk infrastructure where it is lacking and developing a mechanism for compensating private property developers that provide infrastructure. It is necessary to support small and medium scale enterprises in fabricating simple house building materials, review housing policy and building policy, and the state should put more effort in making more secure customary land accessible for development. It is also important to establish a mortgage bank for providing loans to genuine private property developers and to establish more vocational schools for training people who would like to join the house building industry. If the private sector is more involved in the provision of housing, the state will benefit more from revenue from Goods and Services Tax (GST) and stamp duties, and more jobs will be created for people. The findings could assist housing estate managers, planners and policy makers in making informed decisions in designing strategies for providing affordable housing. They could also serve as important ingredients in the review of housing policy in PNG.

Ch. 1 Introduction

Government efforts toward the provision of housing in most developing countries have not been successful (Aribigbola, 2008; Hassan, 2011; Yuan et al., 2017). This is strongly linked to inefficiency associated with the public sector, budget constraints and bureaucracy as found by Mazouz et al. (2008) in a study of housing project-based management typology. The problems associated with public sector provision of housing have led to a paradigm that involves the private sector in building houses, whereas the public sector creates an enabling environment (Tang et al., 2010). Several authors have found that the private sector performs better in the provision of housing than the public sector (Tang et al., 2010). For example, in a study of public-private partnership in construction of houses, Cartlidge (2006) found that private sector is more efficient than the public sector. This is because the private sector is more disciplined by market forces and competition. In a study of government intervention in housing, Sheridan et al. (2002) found that private sector provides government with the opportunity to enjoy "sliding scale support" by shifting resources from housing to other areas of the economy.

As housing shortages and the corresponding increase in house prices have continued to increase especially in urban areas, major reforms are taking place in most developing countries to boost the supply of houses to the property markets. One of such reforms is the leverage of private investment to help maintain and expand the affordable housing stock through public-private partnership (PPP) as reported by Ibem and Aduwo (2012) in a study of PPPs in Nigeria. The PPP involves a range of institutional arrangements between public and private sectors in regards to sharing benefits, costs and responsibilities in provision of housing, infrastructure and services (Ibem, 2010; 2011). The PPP can help governments fill the capital gaps and resolve the management problems in project operation, resource utilisation and service delivery (Tang et al., 2010). It promotes participation of relevant stakeholders and improves productivity of the public sector in the provision of housing (Shelter Afrique, 2013). This prompted governments of some developing countries such as Nigeria, Egypt, Kenya and Malaysia to adopt PPP in the provision of housing, especially in urban areas.

The public and private sectors have specific roles to play for the housing sector to function properly. This makes it necessary for the public and private sectors to collaborate in the provision of housing through PPP. In this arrangement, the private sector often participates in various stages of the housing project such as design, implementation of the design and funding (Tecco, 2008). The public sector focuses on development of housing policy and the provision of trunk infrastructure and services to enable the private sector to operate properly. For example, in a study of provision of better services through public-private partnership, Taylor (2007) found that the partnership brings relevant stakeholders together and promotes the distribution of risks associated with the provision of housing.

Areas where houses are built are often classified in terms of their characteristics. These are informal-built and formal-built (Arvanitis, 2013). The informal entails areas where houses have been built without proper development plans, the land has not been serviced and land titles are not available. The formal built area involves housing units built by developers with proper planning on serviced land with proper land titles. The study reported in this paper focuses on houses built in formal areas.

Overview of Papua New Guinea's housing sector

Unlike in most developing countries where the private sector is actively involved in the provision of housing, government agencies in Papua New Guinea (PNG) are directly involved in building houses (Webster et al., 2016). As government dominates the housing sector in PNG, there are only a few large private property developers that are involved in the provision of housing. To this end, the supply of houses to the housing markets has not been able to meet the demand, which has resulted in shortages of houses and increase in sales and rental prices of houses in cities such as Port Moresby (Ezebilo et al., 2016). For example, in a study of market prices for residential properties in Port Moresby, Ezebilo et al. (2016) found that most Port Moresby residents might find it difficult to pay house rent because of the high house rental prices. In order for more houses to be supplied to the housing markets in PNG, private property developers must be encouraged to be more actively involved in the housing sector and the role of relevant stakeholders properly defined. The study reported in this paper contributes to it by drawing lessons from a successful private property developer in Port Moresby; that is, EDAI Town Development Limited (ETDL).

The government attempted to provide housing for urban residents through various initiatives, which include building of houses by government agencies such as National Housing Corporation (NHC) and National Housing Estate Limited (NHEL), as well as First Home Ownership Scheme (FHOS). However, housing shortages have reached critical levels and caused corresponding increases in house prices (Ezebilo et al., 2016). Provision of housing to residents of PNG cities such as Port Moresby has become a major challenge for the government due to the fact that the housing sector is evolving from a government dominated system to a more market-driven one. In addition, more people have continued to migrate from rural areas to cities in search for jobs, which tends to compound the problems.

In a review of the activities of housing and real estate industry in PNG, the Independent Consumer and Competition Commission (ICCC) found that the high housing prices in major cities of the country are caused primarily by inefficiency in the supply of houses by government agencies, insufficient supply of land and unclear government policy on housing (ICCC, 2010). In order to move PNG forward, the ICCC recommended that government agencies such as the NHC should play facilitating roles in the provision of housing, whereas private sector should be encouraged to build houses. However, currently the roles of public and private sectors in provision of housing in PNG are not clear. The PNG Vision 2050 highlighted the need for improved infrastructure and efficient delivery of public goods and services (National Strategic Plan Taskforce, 2009). In order to mitigate housing shortages and the skyrocketing house prices in PNG cities, it is necessary to develop a vibrant and competitive private sector that could collaborate properly with the public sector. A key means of encouraging the private sector to participate actively in provision of housing in major cities of PNG is by developing effective partnerships between the public and private sectors. There is also a need to develop guidelines that govern the role of each partner in the provision of housing and this paper contributes to it. The housing sector in PNG is evolving from a government dominated system to a more market-driven one. To this end, the public and private sectors have important roles to play in the provision of housing. It is important to have more understanding regarding potential ways of developing an effective and efficient public-private partnership in provision of housing.

The aim of this paper

The aims of this study are two-fold. The first is to examine activities of private property developers in relation to provision of trunk infrastructure, access to land and development of the land as well as sales of houses, using the ETDL as a case. The second is to identify challenges that ETDL faces and its coping strategies, and to discuss potential policy lessons that can be drawn from the study that could be used to promote orderly housing development.

It is hoped that the findings from this study will contribute to improving housing policy and urban development planning in PNG, especially in regards to promoting an effective PPP in provision of housing. It can also serve as guide for private individuals and corporate bodies that wish to invest in the housing sector in the country. The findings will contribute to the discussions on potential ways of addressing housing demands and preferences in urban areas of PNG and potentially other countries that have similar conditions as PNG.

Ch. 2 Brief review of provision of housing in developing countries

Approaches to provision of housing

There are primarily two main approaches to provision of housing. These include:

i. The Government Provider Approach (Ibem and Aduwo, 2012). This entails government agencies such as National Housing Corporation (NHC) being directly involved in building houses, developing trunk infrastructure and developing and implementing housing policy. In the past, governments of most developing countries such as Nigeria (Abdullahi and Aziz, 2011), Malaysia (Abd Aziz et al., 2008) and Brazil (Fruet, 2005) adopted the government provider approach for supplying houses in urban areas. However, the government provider approach has not been able to address shortages of housing and the rising house prices especially in urban areas. For example, in a study of housing policy implementation in a Nigerian township, Aribigbola (2008) found that lack of political will, poor funding and inadequacies of mortgage institutions led to failure of government provision of housing. In an Egyptian study of challenges associated with housing supply, Hassan (2011) found that the involvement of government in the construction of houses caused distortions to the housing market in the country.

ii. The Enabling Approach (Hassan, 2011). This involves the public sector, such as government agencies, transferring some of its responsibilities to the private sector following established guidelines that outline roles of the public and private sectors, respectively. This is the current approach that has been adopted by most developing countries such as Egypt, Nigeria, Malaysia and Kenya. The primary role of the public sector in this approach is to provide enabling conditions for the private sector to operate. This includes the provision of trunk infrastructure, effective housing policies, monitoring the quality of houses that have been built and promoting access to land for development. The role of private sector is primarily the construction of quality houses that meet societal demands and preferences. The Enabling Approach mimics PPP in provision of housing. For example, in Nigeria failure of the government to address the housing shortages and the hike in housing prices led to changes in the national housing policy, which incorporates the private sector as the housing provider. In this current paradigm the government serves as enabler and facilitator in housing delivery. In Egypt, the government has adopted mechanisms and incentives to encourage private sector participation in the provision of housing. The main role of the government agencies in charge of housing in Egypt is to establish standards for houses to be built and control quality of houses built by private sector, as well as providing trunk infrastructure as reported by Hassan (2011). In a Malaysian study, Abdullahi and Aziz (2011) found that incentives and control provided by the government to the private sector help to strengthen the country's capabilities in meeting its housing needs.

Public-private partnerships in provision of housing

Public-private partnership (PPP) in the provision of housing is a collaborative arrangement which is based on mutual trust between public and private sectors (Ong and Lenard, 2002). It involves sharing of responsibilities, risks and benefits between these sectors in the provision of housing that meets societal preferences and demands. The idea of PPP is in line with the public management theory that stipulates that partnership contributes to

addressing the weaknesses of government in provision of housing by collaborating with the private sector (Yamamoto, 2007).

The primary goal of PPP in the provision of housing is to encourage government to focus on providing an enabling environment that facilitates private sector in building houses (Ibem and Aduwo, 2012). The PPP has the potential to promote participation of relevant stakeholders in provision of housing (Pessoa, 2006). It could result in a reduction of government's expenditure and promote efficient use of resources in the provision of housing (Brown et al., 2006; Klijn and Koppenjan, 2000).

Some authors such as Adams et al. (2006) and Brown et al. (2006) perceive PPP as a model that entails collaboration between public and private sectors in provision of public services, which have been provided by only the public sector in the past. Other authors such as Bovaird (2004) perceive PPP as a form of privatisation in which provision of public services are contracted out to private sector by government. Scott (2004) argued that PPP is potential a way that the government uses to pass its responsibilities to the private sector. Authors such as Tomlinson (2005) reported that PPP might result in weakening government's control over decision making and accountability. This suggests that apart from benefits associated with the PPP there are also some concerns attached to it. For example, PPP might lead to loss of independence by government in decision making. Provision of housing by the private sector might make it difficult for low-income groups to afford housing. Several developing countries have adopted PPP for the provision of housing. These include Malaysia, Brazil, Nigeria and Kenya (Abd Aziz et al., 2007; Fruet, 2005; Adegun and Taiwo, 2011; Otiso, 2003). It is important to note that the PPP has performed better in the provision of housing than the approach that involves only government in all these countries.

How to promote a successful public-private partnership

Several factors have been identified that contribute to long-term success of PPP. For example, in a study of criteria for selecting private sector partner in PPP, Zhang (2005a) found that proper partner selection contributes to the success of PPP. In studies of PPPs in the provision of physical infrastructure and partnerships in infrastructure development, Akintoye (2009) and Zhang (2005b) found that a good communication system, an effective institutional framework and a favourable social, political, legal and economic environment are necessary for the success of PPP. In a study of public-private partnerships in urban infrastructure, Koppenjan and Enserink (2009) found that access to relevant information, skills, capacity of the public regulators and clearly stated roles and responsibilities of each partner are important. In a New Zealand study of public sector outcomes with private sector partners, Buttimer (2006) found that firm commitment from government is crucial for the success of PPP. In a Nigerian study of the motivation for private developers, Onyemaechi and Samy (2016) found that access to buildable land and timely approval of building plans influence private developers' participation in PPP.

The theory of attribution in relation to ETDL organisational behaviour

According to the conceptions of attribution, all people are researchers and each individual has their own theory and they test own hypothesis (Kelly, 1963). An individual often test excuses rather than try to modify their thoughts (Olsson and Ljunghill, 1997). This is associated with an individual's psychological theory: that is, the conscious and unconscious behaviours formed that influences an individual's life. In this study, it is referred to as "personal

explanatory theory" (Emilsson and Johansson, 2007). It is assumed that the learning process begins when the private property developer identifies some problems associated with the construction of a house. This makes the developer focus primarily on his or her personal explanatory theory and he or she tries to explain reasons for the problems. In doing so, the developer reflects on the problems associated with the construction of the house and the potential strategy to cope with the problems. At the end of the reflections, the private property developer develops new knowledge and personal theory on the construction of houses. This influences the developer's perceptions of challenges and coping strategy in construction of the house. Thus the perceptions are built around the developer's knowledge and experience (Morrison, 2004). In this study, we explore how ETDL management have been able to tackle problems associated with the provision of an enabling environment for the construction of houses (i.e. the trunk infrastructure and services) as well as mitigate the challenges involved in building houses in PNG.

The effectiveness and efficiency in the provision of housing, especially over the long term, depend on the way the housing project is managed. Housing in formal, built areas require trunk infrastructure and resources for building houses, such as land, labour and building materials. It is the responsibility of the state to provide infrastructure and formalities required for accessing land. However, the property developer is expected to provide resources for building houses. This implies that cooperation with government agencies such as the Department of Lands and Physical Planning, Eda Ranu, NHC and PNG Power are required for housing projects to be effective. A property developer's belief determines its attitudes and behaviour (Fishbein and Ajzen 1975). Developers are often risk averse (which means most developers do not like to take a risk), and they tend to have positive assessments for things that generate net benefits (Garrod and Willis 1999). This implies that private developers would not likely provide trunk infrastructure because it is often expensive and is public goods, which should be provided by the state. It is expected that if a special arrangement in regards to internalising costs associated with the provision of trunk infrastructure is put in place, private property developers might provide infrastructure if it would benefit them in the long term.

Ch. 3 Materials and methods

The shortages in supply of houses relative to demand in Port Moresby has led to private sector investment in the housing sector, and ETDL is one of the large scale private property developers in PNG. The EDAI Town is located in Port Moresby's north-western corridor near the PNG liquefied natural gas project (see Figure 1). It is about 20km from Port Moresby, which is about a 15-minute drive from the central part of the city. The EDAI Town is a gated, guarded community and the houses sold there include portions of land where each of the houses is built (land package). Potential buyers could use the First Home Ownership Scheme loan to purchase a house there. The ETDL involves a partnership between private property developers and Boera Village which was established in April 2011 and was officially launched by PNG Prime Minister Peter O'Neill, in October 2013.The ETDL aspires to build a modern global village where communities could live in an urban setting. This implies developing a modern township that houses Papua New Guineans in a safe and affordable housing environment that creates employment and business activities. To this end, house owners' interests are protected through a legally binding lessor/sub-lease arrangement for the management of common facilities.

Figure 1: A map showing the location of EDAI Town

http://www.century21.com.pg/2615862/

Data collection

The data were collected by means of a semi-structured, face-to-face interview and visits to EDAI Town building site for inspection. The questions that were used for the interview were

designed through discussions with five academics at the PNG National Research Institute. The academics include those whose works were related to residential property development and those that do not work on property development-related issues. The questions that were developed from the first discussion were drafted and sent to the academics for their comments. The draft was modified and subsequent drafts were sent to the academics twice and a final questionnaire draft was produced. To validate the draft, a pre-test interview was conducted in August 2016 with four people, two of whom worked in the housing sector, one of whom worked in the transport sector and the last a housekeeper. All of them were high school graduates and had lived in Port Moresby for several years. Some concerns raised by these people led to modification of the draft and a final version of the questionnaire produced. The questionnaire consisted of 32 questions and 18 of the questions that are more relevant to the subject of this paper were used.

For the main interview, the private property developer for interviews was selected by a multi-stage stratified sampling technique. First, all major cities in PNG (Kokopo, Lae, Mount Hagen and Port Moresby) were identified and the city with the largest housing market was selected, which is Port Moresby. Second, large scale private property developers in Port Moresby were identified and the developer with the lowest sales price for a three-bedroom house was selected. To this end, ETDL was selected as a case for this study. Prior to the interviews, ETDL management was contacted and a date for the interviews was agreed. The main interviews were conducted in August 2016 involving a facility manager and two Directors of the ETDL. The interviews were conducted at the ETDL office by the authors of this paper.

After explaining the aim of the survey (i.e. prospects and challenges in private sector provision of housing in major cities of PNG) and the confidentiality of their responses, the interviewees were asked a series of close-ended and open-ended questions. These included questions about the provision of trunk infrastructure such as pipe-borne water, sewerage, good road-network and electric power. Other questions included the organisational structure of ETDL, access to land, building plans, source of materials for building houses and the group of people targeted in the housing market. The interviewees were asked about house sales prices, houses that had been built and sold, the house completion rate and the type of houses most preferred by buyers. They were asked about challenges they faced in relation to the provision of houses and how they had coped with it. They were asked whether they received support from the state and potential ways to encourage private property developers in PNG to build more affordable houses. All the responses were written on papers.

Before and after the interviews, we visited EDAI Town building site to assess the houses under construction and houses completed as well as the trunk infrastructure. In addition, we assessed the quality of materials used for construction of houses on the site and a manager in-charge of the construction of houses and maintenance of trunk infrastructure was interviewed.

Qualitative content analysis

The data were analysed using qualitative content analysis, which is a research method for interpreting qualitative information through the classification process of coding, categorising and identifying themes (Hsieh and Shannon, 2005; Polit and Beck, 2008). Qualitative content analysis represents a systematic and objective means of describing and quantifying phenomena (Schreier, 2012). In order for qualitative content analysis to be used for data analysis, the data must be able to be reduced to concepts that describe the

research phenomenon by creating categories, concepts, a model and conceptual system (Elo and Kyngas, 2008; Hsieh and Shannon, 2005). The research questions elicit what to analyse and what to create (Elo and Kyngas, 2008).

Qualitative content analysis can be used on all types of written texts. For example, in-depth interviews, focus group interviews and in open-ended questions in a questionnaire (Wann-Hansson et al., 2005; Ezebilo, 2012; Golsater et al., 2011; Donath et al., 2011). It is presented in words and themes, which makes it possible to draw some interpretation of the results (Bengtsson, 2016). Qualitative content analysis can be classified into manifest analysis and latent analysis. In the former, it entails the researcher describing the actual responses of the interviewees, whereas the latter involves the researcher seeking to find the underlying meaning of the responses (Berg, 2001). As we want to draw lessons from a private property developer that could be potentially applied to the activities of other developers in PNG, we have applied the latent analysis in this study.

Data Analysis

The data analysis began by reading all written texts containing the interviewees' responses several times. This helped us to be familiar with contents of the responses from the interviews and to maintain the quality and trustworthiness of the analysis. The responses were transcribed and the transcripts were read several times in order to become more familiar with the content of the transcripts. Next, the responses were read word by word to generate codes, which began by highlighting the exact words from the responses that appear to capture key thoughts as suggested by Hsieh and Shannon (2005). The quotations from the transcripts were summarised and labelled with codes. The codes were regrouped several times until suitable codes, categories and themes emerged (see Hofsten et al., 2010). The underlying meaning of the texts was interpreted and discussed.

Limitations of the research method

Only three people from one private property developer were interviewed. However, it is important to note that they belonged to the management team that have much knowledge on the implementation of ETDL activities. In addition, an in-depth interview approach was applied, which contributes to generating a lot of information. Furthermore, studies involving qualitative method are often based on sample size of one to 30 (Fridlund and Hildingh, 2000). In this study, the interviewees have huge experience in property development in PNG and in other developing countries. The interviewees include two men and a woman, which indicates that the data that were generated from the interviews reflect gender, local and international perspectives. In addition, the data collection method often has influence on depth of the analysis (Bengtsson, 2016). Interviews were applied in this study, which provided us with the opportunity to deepen the discussion with the interviewees.

Ch. 4 Results

Provision of trunk infrastructure and services

The results show that EDAI Town has all necessary trunk infrastructure such as clean, portable-piped water, sewerage, electric power and a good road network. The infrastructure was provided either by ETDL alone or by ETDL in collaboration with relevant government agencies. The interviewees reported that ETDL has spent PGK12,700,000 (US$3,848,484) on the provision of trunk infrastructure (see Table 1).

Table 1: Cost of trunk infrastructure at EDAI Town

Infrastructure	Cost in PGK
Piped water	1,000,000
Sewerage	1,500,000
Road network	10,000,000
Electric power	200,000
Total	12,700,000

US$1 = PGK3.3

Regarding portable-piped water and sewerage, ETDL received a private licence from Water PNG in order to operate water and a sewage treatment plant privately. The ETDL also received a permit from the Conservation and Environmental Protection Authority (CEPA) for the discharge of sewage, which implies that the treatment might be in line with international standards. The waste water is discharged through normal water catchment channels. It is important to note that the ETDL received a licence from Water PNG instead of Eda Ranu, because EDAI Town is located in the Central Province. Eda Ranu is in charge of water supply and sewerage in the National Capital District (NCD). The EDTL paid PGK2,500,000 (US$757,576) for the water and sewerage project (see Table 1). In order to sustain the water and sewerage project, EDAI Town residents pay water bills in accordance with the quantity they have used. A water meter which records the volume of water used is installed in each of the houses at EDAI Town.

EDAI Town residents have access to good road networks there. Roads in the Town are linked to the Port Moresby–LNG road, which makes it easy for the residents to access Port Moresby city. ETDL built roads and drainage systems within EDAI Town at the cost of PGK10 million (US$3,030,303), whereas the state built the Port Moresby–LNG road. Approval from government agencies is not required for constructing roads and drainage systems within EDAI Town. In order to sustain the maintenance of roads and drainage systems in the Town, each of households who reside there pays PGK30–90 (US$9–27) per week as corporate services fee depending on the size of their house.

EDAI Town residents have uninterruptable access to electric power from the main grid and power generating set. The main grid is supplied by PNG Power, in which ETDL purchased 1 megawatt for PGK200,000 (US$60,606) under capital advance contribution. In this arrangement, ETDL provided all materials for installing power that PNG Power could not provide such as electric cables. However, EDAI Town must use up the 1 megawatt power that was purchased by ETDL within a period of 5 years. All houses in EDAI Town have a

post-paid electric power meter that records power usage, and residents pay for power each month. Residents who refuse to pay electric power bills are often given 14 days to pay or risk a power cut. The post-paid meters help ETDL to capture costs associated with power from power generating set and that from the main grid.

Provision of services at EDAI Town

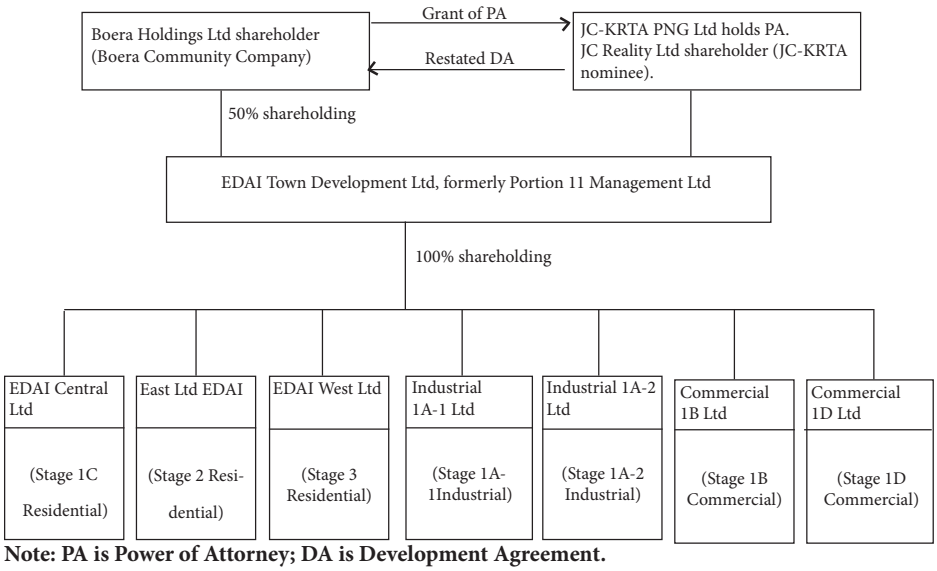
EDAI Town residents have access to household waste collection services. Household wastes are stored in garbage bins and the garbage is collected once each week by the service providers. In order to sustain the waste management services, each household pays PGK30–90 (US$9–27) each week as corporate service fees depending on the size of the house they live in. EDAI Town residents have access to public transport services, which are managed by ETDL. A bus shuttle that transport people to and from Port Moresby city centre twice daily is available there. For a resident to access the shuttle, adults are required to pay PGK60 (US$18) and students PGK40 (US$12) for each fortnight, which must be paid in advance.

The interviewees reported that security concerns do not exist at EDAI Town. However, security officials are there to help keep law and order in EDAI Town. A shopping centre, health centre, schools, child care facilities and leisure facilities such as sports hall did not exist in EDAI Town during the period of this study. However, ETDL plans to build a maternity centre and later a clinic that will cater for EDAI Town residents and the nearby villages such as Borea. There are also plans to introduce kindergarten and elementary school in 2017.

EDAI Town Development Framework

ETDL originated from collaboration between Boera Holdings Ltd (i.e. Boera Community Company) and JC-KRTA Consulting Group (PNG) Ltd (see Figure 2). Boera Holdings and JC Reality Ltd (a JC-KRTA nominee) have 50% shareholding each in the ETDL. The ETDL has 10 directors, of whom five are PNG citizens and five non-citizens. Boera Holdings Ltd applied for an urban development lease (UDL) and was granted Portion 11 by the Department of Lands and Physical Planning. Portion 11 has an area of 155 hectares and Boera Holdings was given 5 years to develop it. In order to hasten development of the land, Boera Holdings granted power of attorney to JC-KRTA Consulting Group (PNG) Ltd. In the same order, JC-KRTA nominated JC Reality Ltd as a shareholder for developing the land. JC Reality merged with Boera Holdings to establish the ETDL, of which they have 50% shareholding each. Portion 11 was sub-divided into seven portions (lease titles), three of which were for residential development, two for industrial development and two for commercial development (see Figure 2). During the period of this study, ETDL is developing Phase 1 in one of the residential leases (Portion 2699), where some houses have been built and sub-leases created for 99 years and traded to individual home buyers. ETDL had approval of its building plan from the National Physical Planning Office. This is because the Central Province does not have a physical planning board, whereas ETDL building approval process was through Central Building Board.

Figure 2: Development framework of EDAI Town Development Ltd

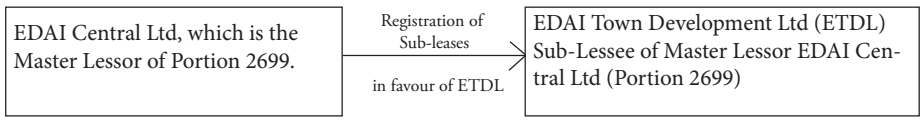


Note: PA is Power of Attorney; DA is Development Agreement.

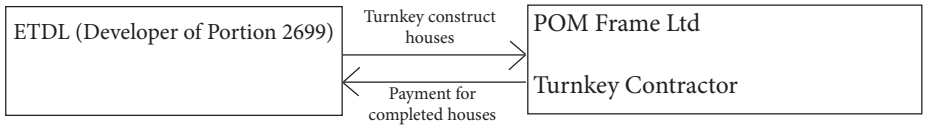
Regarding the development of Portion 2699, EDAI Central Ltd, which is the Master lessor, registered the sub-lease in favour of ETDL (Figure 3). Turnkey Contractor was invited by ETDL to build 161 units of houses, whereas ETDL developed the contract for sales of the houses and the transfer of long term lease to house buyers. ETDL will continue to do maintenance work in the common areas and manage trunk infrastructure and services during the sub-lease period (99 years).

Figure 3: Stages of the development of EDAI Centro Housing

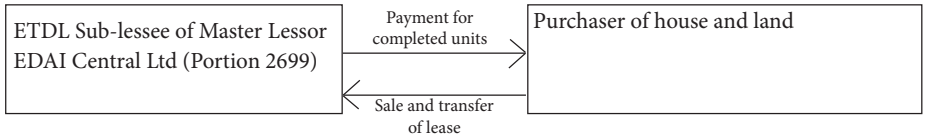
1) Issue of Sub-leases by EDAI Central Ltd to EDAI Town Development Ltd



2) Turnkey Construction Agreement for 161 units Phase 1



3) Sale of 161 units of Phase 1 house and land package through 99 year Sub-lease



4) Ongoing maintenance of common areas during term of sub-lease

Building and sales of houses in EDAI Town Phase 1

ETDL has built 89% (144) of houses earmarked for Phase 1 and all the houses have been sold. Four categories of houses are found in EDAI Town as shown in Table 2.

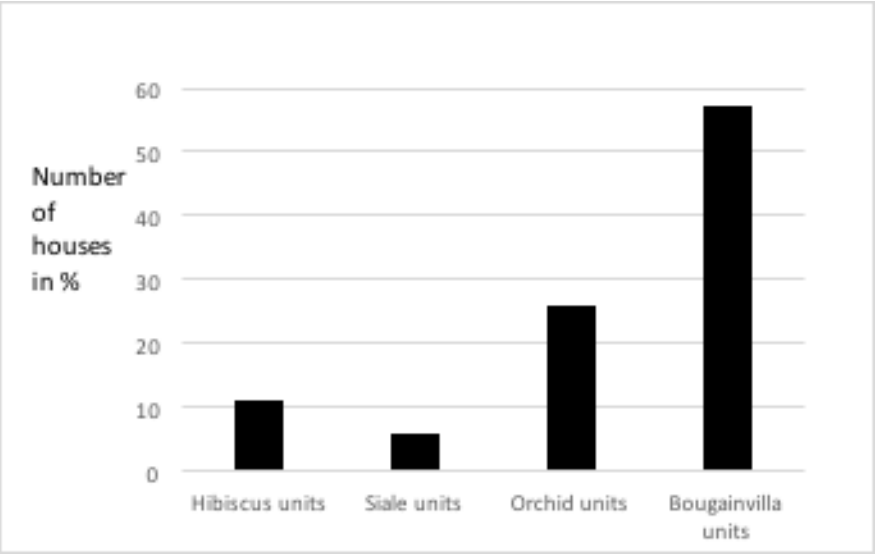
Table 2: House types and sales price in EDAI Town

House type	Description	Sales price in Kina including GST
Hibiscus	PNG traditional highset home consisting of 3 + 1 rooms.	616,000.00
Siale	A modern two storey home of 3 + 1 rooms.	803,000.00
Orchid	A double storey duplex consisting of 3 rooms.	437,800.00
Bougainvilla	This is a double storey townhouse made up of 3 rooms.	294,800.00

GST is 10% of sales price; US$1 = PGK3.3

Of all categories of the houses built in EDAI Town, the Bougainvilla is the most preferred by house buyers, followed by the Orchid, and the Siale is the least preferred. In the past, sales price of advertised houses did not include GST. This led to confusion and misinformation among house buyers. For this reason, GST was incorporated in sales price of houses that were advertised by ETDL. The interviewees reported that ETDL primarily targets medium to high income groups in the housing market, especially people who earn at least PGK1, 500 (US$455) each fortnight. There are no restrictions on the number of houses an individual could buy from EDAI Town. Phase 1 of EDAI Town will consist of 161 house units as shown in Figure 4.

Figure 4: House types to be built in Phase one



On average, the revenue that will accrue to ETDL from sales of houses in Phase 1 is as follows:

- Hibiscus: 18 multiplied by the sales price for a unit (PGK616,000) = PGK11,088,000

- Siale: 10 multiplied by PGK803,000 = PGK8,030,000
- Orchid: 42 multiplied by PGK437,800 = PGK18,387,600
- Bougainvilla: 91 multiplied by PGK294,800 = PGK26,826,800

The total revenue from sales of houses in EDAI Town Phase 1 is PGK64,332,400 (US$,494,667). The state would have made PGK6,433,240 (US$1,949,467) from the sales through GST, which is10% of the sales price.

The interviewees reported that 30% of costs associated with building a house in EDAI Town accounts for the cost of trunk infrastructure and services. This implies that on completion of EDAI Town Phase 1, ETDL would have spent PGK19,299,720 (US$5,848,400) on the provision of trunk infrastructure and services.

Most of the building materials used in building houses in EDAI Town were imported and import duties were paid on the materials. On average, import duties account for 20% of the materials. Some building materials are sourced locally and it accounts for 50%, whereas the remaining 50% are imported from countries such as Australia and Malaysia. However, most of the materials that are sourced locally are imported by building material merchants, which implies that ETDL pay import duties indirectly on materials sourced locally. Imported materials are often bought by ETDL because most of the locally made building materials are either of poor quality or more expensive than the imported materials. It takes ETDL an average of between three to four months to complete a 3-bedroom house.

Challenges associated with building houses in PNG

EDTL encounter several challenges in developing houses and selling houses in PNG. These include the following:

- *Financial constraints.* The interviewees reported that commercial banks in PNG rarely comprehend the importance of project finance and do not often provide loan facilities to private property developers.
- *Bureaucratic problems.* There are a lot of bottlenecks in accessing housing loans through the FHOS from the Bank of South Pacific (BSP). It is a lengthy, which results in delays in the house buying process. In addition, there are often delays in receiving approval from Customs officials for evacuation of imported building materials at the seaport. Building Board meetings are not frequent, which often leads to delay in the approval of relevant documents. This problem often discourages potential private property developers from investing in the housing sector.
- *Unsupportive policy environment.* The current PNG housing policy is out-dated and does not reflect realities in the country. In addition, the policy does not have enough legislation for regulating housing industry in PNG.
- Capacity constraints. There are shortages of skilled labour in the house construction in PNG and people that are available require more training, which contributes to the cost of building a house. Furthermore, the country lacks industries that could support large scale housing projects.
- *High cost of building materials, trunk infrastructure and land.* Most housing building materials are imported and attract import duties (tariffs), which adds to the cost of production, whereas locally produced materials are often more expensive than the imported materials. It is the responsibility of the state to provide trunk infrastructure and services. However, there is often lack of infrastructure and services in some segments

of PNG which compels private property developers to provide the infrastructure for the houses they have built to be liveable, which is often a very huge investment. State-owned land preferred by most private property developers is almost exhausted and access to secure customarily-owned land is difficult which makes land very expensive.

- *Attitudinal problems.* Some of the workers have poor attitudes to work, which make them report late to work and some do not report at all without prior notice, especially after pay day.

ETDL coping strategies

ETDL have used several strategies to cope with the current realities in the housing sector of PNG and these include the following:

- Buying building materials in large quantities in order to benefit from wholesale prices, which lower the unit price of the materials.
- Thorough market search before buying building materials. This often helps ETDL identify marketers of quality products that have the least possible price.
- Housing market research on preferences and demands for various house types. This has led to the construction of more houses in high demand.
- Building of quality and durable houses that could stand test of time.
- Taking up the responsibilities of providing necessary trunk infrastructure.
- Managing introduced trunk infrastructure and services by ETDL in order to reduce the risk of mismanagement of the EDAI Town.
- Workers are trained on the job to provide them with the required skills.
- Drawing lessons from success stories on private provision of housing from countries such as Malaysia.

Potential ways to encourage private property developers to build more houses

The interviewees reported that if intention of the state is to encourage private property developers in PNG to supply more houses to the housing market as well as reduce the cost of building houses we could do the following:

- The state should provide more support to the house building material industry, especially the small and medium scale enterprises (SMEs) and consequently support the housing industry. For example, the SMEs could begin with the production of simple materials such as bolts and nuts until such a time they have the knowledge of producing complex building materials.
- Building Boards should meet more frequently to avoid delays in approving building plans.
- More people should be trained in vocational professions such as carpentry, welding, bricklaying and painting. They should also be trained on work related ethics.
- The housing policy should be reviewed in order to address the current realities in PNG.
- Proper legislation for regulating the housing industry should be developed.
- The state should put more effort in providing trunk infrastructure or make special

arrangements with private developers to provide the infrastructure.

- The FHOS application process should be streamlined to avoid lengthy delays in accessing housing loans by potential house buyers.
- State land is almost exhausted, so more effort should be focused at making secure customary land more accessible for development.
- The role of the state and private sector in the provision of housing should be streamlined.
- The state should encourage financial institutions to provide loans to private property developers.

Ch. 5 Discussions

The provision of trunk infrastructure is the exclusive role of the state. However, the findings from this study revealed that private property developers have the potential to provide infrastructure and manage it effectively. For example, ETDL introduced all necessary trunk infrastructure to EDAI Town successfully and has managed the infrastructure effectively without the support of the state. The findings are in line with other studies such as Ibem and Aduwo (2012) who found in a Nigerian study of PPPs that the private sector was more effective than the public sector in the provision of housing. The provision of trunk infrastructure by the private property developers will provide the state with the opportunity to transfer resources from housing to other segments of the economy as reported by Webster and Duncan (2009) and Sheridan et al. (2002). It is important to note that the development of trunk infrastructure is expensive and some have characteristics of public goods, which makes it practically impossible to exclude people who have not paid for it from using it. In order to encourage the private property developers to take over responsibilities of the state in providing trunk infrastructure, they could be given tax credit. This will help offset some of the costs associated with infrastructure. In addition, it will reduce the cost of building houses and consequently reduce sales and rental price of houses in PNG. The tax credit scheme has been successfully implemented in the private sector provision of affordable housing in the United States as reported by von Hoffman (2016) in his paper on policy history of preservation of affordable housing.

The findings show that cost of trunk infrastructure accounts for 30 percent of the total cost of building houses. This suggests that if a tax credit scheme is introduced in PNG to compensate private developers for providing trunk infrastructure, it will play an important role in reducing the cost of building houses. It might also attract more private property developers into the housing sector, which should help supply more houses to the housing market. This has the potential of pushing down house prices, which could increase housing affordability among Port Moresby residents as reported by Ezebilo (2016) in his study of PNG's drive to provide affordable housing. In the current situation where private property developers provide trunk infrastructure and services, the state benefits from GST, the developers benefit from the high house prices and house buyers lose.

The findings show that foreign investors can collaborate with indigenous companies in providing housing, which could lead to a 'win-win' situation for landowners, investors and the state. This implies that landowners, investors and the state benefit from the EDAI Town housing project. For example, 50% of the shareholders of ETDL are from Boera Community Company, whereas 50% shareholders are from a foreign owned company. To this end, the indigenous community and the investors will benefit from sales of houses that were built by ETDL, whereas the state will benefit from the GST that are charged on house sales as well as benefit from charges paid on electric and water bills. This reveals that with proper arrangement, investors and landowners can collaborate effectively in the provision of housing in PNG. This conforms to the arrangement that has been advocated by the National Land Development Program that was funded by the PNG Government. However, the responsibilities of each of the parties involved in the arrangement must be streamlined for the collaboration to work well. Our finding is in line with that of Akintoye (2009) who found that good communication and effective institutional frameworks are

important in partnerships. This indicates that EDAI Town housing project could serve as a model which new housing investors could draw lessons from.

Orderly development is crucial for the success of a housing project. Our findings support the evidence that access to secure land (that is, land that has a correct title) and the introduction of trunk infrastructure such as clean potable, piped water, electric power and sewerage before building houses, are important for a housing project to be effective. It helps shorten the waiting time between building a house and moving into the house by the tenants as well as providing the property developer opportunities for building more houses. The finding is in conformity to that of Arvanitis (2013) who found in a Kenyan study of housing market that difficulties in accessing secure land and trunk infrastructure militate against the supply of houses to the housing market. It is also in line with the findings of Nao and Ezebilo (2017) that found in a PNG study of public provision of housing in Port Moresby that trunk infrastructure must be provided before building houses. ETDL had access to state-owned land based on urban development lease and it commenced building houses after introducing trunk infrastructure. This might be a possible reason that houses in EDAI Town are in high demand. In addition, ETDL provide back-ups to guarantee a steady supply of electric power and water as well as public transport.

Private property developers that want to be successful in doing business in PNG must be ready to adapt to the realities in the country. Our findings reveal that one of the possible reasons that ETDL have been able to succeed in the supply of durable and cheaper houses compared to other property developers in and within the vicinity of Port Moresby is that ETDL have paid more attention in adapting to the conditions in PNG. For example, ETDL have developed coping strategies that keeps them afloat in the housing business as well as building low cost and durable houses. For this reason, ETDL have been able to supply the least priced houses to the housing market. For example, the sales price for a three-bedroom house in EDAI Town is approximately PGK300,000, whereas it costs PGK350,000 and more in other housing estates, including in a state-owned housing estate such as Duran Farm. This suggests that new private property developers might do better in their businesses if they could draw lessons from the existing successful property developers such as ETDL.

Our findings reveal that maintenance of trunk infrastructure in a housing project must be considered before introducing the infrastructure. A culture of poor maintenance of trunk infrastructure is one of the problems that PNG face. This has made the existing infrastructure not stand test of time. In some housing estates in the country, the property developers only build and sell houses without considering the sustainability of facilities in the estates. This has made some housing estates not liveable after a few years following their completion. However, it appears that the ETDL have identified this problem before developing EDAI Town and have included the maintenance of trunk infrastructure and services as part of its responsibilities. We found that ETDL is involved in managing all the trunk infrastructure and services, which should be the responsibility of the state. This has the potential of making the infrastructure remain in good condition in the long term. This suggests that government agencies such as the NHC and the Department of National Planning and Monitoring (DNPM) have a lot to learn from EDAI Town housing project.

The state has a lot to gain if houses are built and sold. The findings show that on completion of EDAI Town Phase 1 and once all houses there have been sold, about PGK6.5 million will accrue to the state through GST. In addition, electric power and water service charges that are paid by residents of EDAI Town will also accrue to various state agencies such as PNG Power. Furthermore, the state would have saved all money meant for introducing

trunk infrastructure and services at EDAI Town. The finding conforms to that of Ezebilo et al. (2016), who found that in Port Moresby the state benefits from stamp duties associated with sales of houses. This suggests that if the housing sector is properly organised it will play an important role in generating revenue for the state. However, for this to happen, the state must play its role in regards to the provision of housing and the private sector encouraged to participate more actively in it. For the case of EDAI Town, ETDL provided virtually all the enabling environment required for housing, which might raise the question regarding whether the state should benefit from sales of houses there.

Activities of private property developers in PNG are restricted by several factors and consequently affect the supply of houses to the housing market. The findings from this study revealed that shortages of skilled labour, the high cost of building materials and difficulties in getting access to loan facilities are some of the problems that private property developers face. This is in line with findings from other studies such as Arvantis (2013), Aleker (2016) and Webster and Duncan (2009). In order to alleviate the problems, ETDL have trained some of its local workers on the job and have relied more on imported building materials, which are cheaper than those sold on the domestic market. However, the training costs money and time, whereas import duties are charged on imported building materials, which contributes to the cost of building a house and pushes up house prices.

In addition, inadequacies in the housing policy also contribute to the problems faced by private property developers. For example, there is not enough legislation for regulating the housing industry, which might compromise the quality of houses supplied to the market. For this reason, genuine private property developers who build quality and durable houses might find it difficult to compete with those that use inferior materials in the housing market due to price differences. It is important for state agencies such as the NHC and the DNPM to put in more effort in assessing the quality of houses built and to have the inadequacies in the housing policy corrected. There is also a need to develop more vocational schools that could train more people in professions such as welding, bricklaying and carpentry. Currently, experts from abroad are hired to address the shortages, which is costly for the private property developers because the experts receive higher wages than people trained in PNG. As most building materials are not produced in PNG, the state could support SMEs in producing simple components of the materials. This has the potential for providing the SMEs' owners with the correct skills and experience required for fabricating more complex building materials in the long term, which might help in increasing the quantity of the materials supplied to the market and consequently push down their prices.

It is a known fact that state-owned land is almost exhausted and attention has shifted to customarily-owned land. Our finding is in line with that of several authors such as Wangi and Ezebilo (2017) and Ezebilo (2015). However, accessing secure customary land for development is becoming a long term standing issue for private property developers. To this end, it is important for the state to put more effort in making more secure customary land accessible for development. This is because land is one of the most important factors of production, which has the potential of boosting the PNG economy.

Policy lessons that can be drawn from activities of ETDL

- Private property developers can take up the responsibility of the state in the provision of trunk infrastructure if a special arrangement is made. It is the exclusive responsibility of the state to provide trunk infrastructure. However, private property developers could take up that responsibility especially due to budget constraints on the part of the state and to improve efficiency. But this must be followed by an agreed arrangement

between the state and the developers in regard to a potential strategy that could be used to reduce cost burdens on the private developers. The strategy could be a tax credit scheme, which allows for the compensation of developers that invest in trunk infrastructure.

- Trunk infrastructure must be introduced before building houses. This promotes orderly development in the provision of housing, which leads to a 'win-win' situation for the property developer, the potential occupant and the state in terms of flow of stream of benefits. It helps avoid delays in the completion of a house, sale of the house, the buyer moving into the house and the state generating revenue from it as reported in a study of procedures used for developing houses at Duran Farm in Port Moresby by Nao and Ezebilo (2017).
- The maintenance of trunk infrastructure in the long term must be considered before introducing them. The introduction of trunk infrastructure to an area is a very costly investment, which must be managed properly so that relevant people could benefit from it for a long time. It is important to include a potential strategy on sustainable management of the infrastructure in the housing development framework.
- SMEs that focus on building materials should be encouraged to produce simple materials. House building materials are expensive in PNG because there are only a few producers of the materials in the country. If SMEs are supported with finance, training and given proper guidance on the areas of priorities, they will play an important role in the supply of simple building materials in the short term and complex materials in the long term, which should help reduce the cost of building houses and consequently house prices.
- The state must focus more attention on the release of secure customarily-owned land for development. State-owned land, which is often preferred by investors because of its security of tenure, is almost exhausted and the attention has shifted to accessing customarily-owned land. However, insecurity of tenure and difficulty in identifying genuine owners of customary land is making it difficult to access. The National Research Institute, the National Land Development Program and its associates have worked tirelessly on issues surrounding barriers associated with accessing customarily-owned land for development. They developed the Voluntary Customary Land Registration (VCLR) system, which involved the formation of Incorporated Land Groups (ILG) by landowners and registration of the land. Several landowners have gone through this system and were issued land titles but financial institutions find it difficult to accept the documents as requirements for processing loan applications. To this end, it is important to develop a hybrid of the VCLR system that would provide land title documents which are acceptable to financial institutions. For example, the former Director of the National Research Institute, Dr Charles Yala and colleagues at AKT Associates have proposed a state lease-lease back system. This allows a group of customary landowners to lease their land to the state and the state in turn leases it back to the original landowner, without advertising the lease using Section 10 Agreement in the Land Act 1996. The proposed VCLR-hybrid will enable the landowners get state land title, which is recognised and acceptable to financial institutions for loan applications. The state has an important role to play for the proposed VCLR-hybrid to work.
- The responsibilities of private and public sectors in the provision of housing must be streamlined. The current housing sector in PNG is characterised by a mismatch of roles as reported by Ezebilo (2016) in his review of the provision of affordable

housing in the country. In order to move the housing sector forward, there is a need to streamline the roles of public and private sectors in the provision of housing and each of the sectors must stick to their roles.

- Housing policy must be reviewed to reflect current realities in PNG. Preferences, demands and demography of a society are often dynamic. For this reason, there is a need for housing policy to respond to the changes in order for it to be more relevant in addressing housing needs. The current PNG Housing Policy appears to be outdated and does not match the changes that have taken place in the country, which makes it difficult to use it in addressing housing needs of especially residents of major cities such as Port Moresby.
- The current building policy is outdated. There is a need to review the building policy and the general requirement for physical planning to determine the appropriate structure in areas such as EDAI Town.
- There is a need for effective monitoring of the quality of houses built by property developers. It is the duty of state agencies such as the NHC to see that houses that have been built meet acceptable standards. However, monitoring of quality of houses that have been built has not been effective. This has led to the supply of substandard houses to the housing market, especially in major cities of PNG. In order to promote the provision of quality houses that have the potential of standing test of time, there is a need for the NHC and associated state agencies to put more effort in evaluating and monitoring the quality of houses built.
- The Building Board must have its meetings frequently. Approval of the Building Board is required for private property developers to commence building houses. However, currently the Board does not meet frequently, which often leads to delays in approving housing projects and consequently delay in building houses. The delay is costly to the private developer, the state and the society at large. For example, the price of building materials changes overtime and property developers may have to pay more for the materials because of delays. This also delays the streams of revenue that would have accrued to the state, and potential occupants of the houses that would be built will have to remain homeless. To this end, it is important for the Building Board to have meetings frequently as the need arises.
- There is a need for the establishment of a functional Provincial Physical Planning Board in the Central Province. Currently, private property developers such as ETDL that wish to build houses in the Central Province must seek approval from the National Physical Planning Board. This often leads to delays in getting the plan approved because it is not the primary responsibility of the National Board to process development plan for houses located in the Central Province. The establishment of an effective Provincial Physical Planning Board in the Central Province will help reduce the waiting time for approval of development plans. It will also eliminate confusion in regards to where property developers in Central Province should seek approval of their development plans.
- Financial institutions must recognise the importance of housing to the society by providing loans to genuine private property developers who want to expand their businesses. The development of housing estates, especially in a country such as PNG where various types of trunk infrastructure are lacking, is costly. In order to support private provision of housing, commercial banks have an important role to play in the provision of loan facilities for genuine private developers who wish to expand their

housing businesses. However, some commercial banks may not be willing to provide loans to private developers because of the risk involved. For this reason, the state could establish a mortgage bank that focuses primarily on providing loan facility to genuine developers.

- There is a need for the establishment of more vocational training institutions to help address the shortages of skilled labour. Currently, there is a shortage of skilled labour in the house construction industry. In order to address the shortages, there is a need for the state to establish more vocational training schools in all the provinces and encourage people to enrol in the schools to study courses such as carpentry, bricklaying, painting, welding and plumbing. The state could encourage people to enrol in these courses through scholarship and by promoting public awareness on the importance of vocational courses in nation building.
- The State has the potential of generating more revenue from housing if private property developers are more actively involved in the provision of housing. There is a high demand for houses especially in major cities of PNG and the sales price of newly built houses include GST, which is 10% of the house sale price. In addition, the sales of already occupied houses attract stamp duty, which is 3% of the sale price of the house. The money generated from GST and stamp duties associated with the sales of houses accrue exclusively to the State. The State would have earned approximately 6.5 million Kina from GST for sales of houses in EDAI Town Development Phase 1 alone. This should run into hundreds of millions of Kina if private property developers are encouraged to be more actively involved in building houses.

Ch. 6 Conclusion

EDAI Town Development Limited (ETDL) is one of the large-scale private property developers in Port Moresby. This study provides an insight into activities of the ETDL in the provision of housing in the city. The findings revealed that ETDL provides trunk infrastructure such as clean, potable, piped water, electric power and sewerage, which is the responsibility of the state. Costs associated with the provision of the trunk infrastructure by ETDL account for almost one-third of the total cost of building houses. This suggests that if the state compensates all private developers that are involved in providing infrastructure, the cost of building houses will be reduced to a greater extent and consequently push down sales and rental price of houses.

Some challenges faced by ETDL include shortages of skilled labour, the high cost of building materials, lack of trunk infrastructure, difficulties in accessing loans from financial institutions, inadequacies in the housing policy and difficulties in accessing secure customarily-owned land. However, ETDL have adopted several strategies for coping with the challenges such as training workers on the job, buying house building materials in bulk, developing only house types that are in high demand, thorough market search before buying building materials, and taking on the responsibilities of the maintenance of trunk infrastructure.

If the aim of the state is to promote active participation of the private sector in the provision of housing in PNG, there is a need to streamline roles of the public and private sectors in the provision of housing. A mechanism such as a tax credit scheme for compensating private property developers who provide trunk infrastructure should be developed. SMEs should be encouraged to invest more in the production of simple tools for building houses. It is necessary to establish more vocational schools for training people in professions such as carpentry, plumbing and bricklaying. As a matter of urgency, the housing policy must be reviewed to enable it to match the current realities in PNG, and Provincial Physical Planning Offices must be established in all provinces where they do not exist. The state should put more effort towards unlocking more secure customary land for development.

The findings indicate that the housing sector will contribute more revenue to the PNG economy, provide more jobs and improve societal welfare if the private sector is motivated to be more involved in providing housing in the country. There is a need to provide trunk infrastructure before building houses as well as develop an effective framework in regards to the maintenance of the infrastructure. The findings contribute to a greater understanding on the need for more active participation of the private sector in the provision of housing in PNG. It also contributes to an effective strategy for managing trunk infrastructure as well as potential strategies that could be adopted to move the housing sector forward. This should help residential property development managers in the planning and design of an effective and efficient housing strategy that improves the welfare of the society. It should also help in making informed decisions in the review of housing policy towards making the policy more suitable for the conditions in PNG.

References

Abd Aziz, W.N.W., Hanif, N.R., and Ahmad, F. (2008). The state intervention in achieving a quality urban living standard: A case study of rehabilitation of squatters' colony in Kuala Lumpur. *International Journal of Housing Markets and Analysis* 1(4):337–351.

Abd Aziz, W.N.W., Hanif, N.R., and Musa, Z.N. (2007). Public-private partnerships approach: A success story in achieving democracy in the home ownership for urban inhabitants in Kuala Lumpur, Malaysia. Real CORP 007 Proceeding, Tagungsband, Vienna, Austria. May 20-23, 2007.

Abdullahi, B.C., and Aziz, W.N.W. (2011). The role of private sector participation in achieving anticipated outcomes for low-income group: A comparative analysis of housing sector between Malaysia and Nigeria. *African Journal of Business Management* 5(16):6859–6890.

Adams, J., Young, A., and Zhihong, W. (2006). Public-private partnerships in China: Rational system and constraints. *International Journal of Public Sector Management* 19(2):384–396.

Adegun, O.B., and Taiwo, A.A. (2011). Contribution and challenges of private sectors in housing in Nigeria: Case study of Akure, Ondo State. *Journal of Housing and the Built Environment* 26(4):457–467.

Akintoye, A. (2009). PPPs for physical infrastructure in developing countries. In A. Akintoye & M. Beck (Eds.), *Policy, finance and management for public-private partnerships* (pp. 123–141). Oxford: Blackwell.

Aleker, S. (2016). Improving housing development in Papua New Guinea: Evidence from EDAI Town. *PNG NRI Spotlight*, 9 (4)).

Aribigbola, A. (2008). Housing policy formulation in developing countries: Evidence of programme implementation from Akure, Ondo State, Nigeria. *Journal of Human Ecology* 23(2):125–134.

Arvanitis, Y. (2013). African housing dynamics: Lessons from the Kenyan market. *Africa Economic Brief* 4(3):1–12.

Bengtsson, M. (2016). How to plan and perform a qualitative study using content analysis. *NursingPlus* Open 2:8–14.

Berg, B.L. (2001). *Qualitative research methods for the social sciences*. Boston: Allyn and Bacon.

Bovaird, T. (2004). Public-private partnerships: From contested concepts to prevalent practices. *International Review of Administrative Sciences* 70(2):199–215.

Brown, A., Allison, O., and Luo, J. (2006). The suitability of public-private partnership in the provision of sustainable housing in China. *World Review of Entrepreneurship, Management and Sustainable Development* 1(1/2):101–124.

Buttimer, L. (2006). Achieving public sector outcomes with private sector partners—a New Zealand perspective. *International Journal of Government Auditing*

33(4):22–25.

Cartlidge, D. (2006). *Public-private partnership in construction*. Oxon: Taylor and Francis.

Donath, C., Winkler, A., Graessel, E., and Luttenberger, K. (2011). Day care for dementia patients from a family caregiver's point of view: A questionnaire study on expected quality and predictors of utilisation—Part II. *BMC Health Services Research* 11:1–7.

Elo, S., and Kyngas, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing* 62(1):107–115.

Emilsson, U.M., and Johansson, E. (2007). Supervision of supervisors: On developing supervision in postgraduate education. *Higher Education Research and Development* 26(2):163–179.

Ezebilo, E. (2015). Papua New Guinea's drive for self-sufficiency in food production: Are we ready? *PNG NRI Spotlight* 8 (3).

Ezebilo, E. (2016). Papua New Guinea's drive to provide affordable housing: Are we ready? (PNG NRI Issues Paper 23). Port Moresby: Papua New Guinea National Research Institute.

Ezebilo, E.E. (2012). Challenges in postgraduates: Assessments by doctoral students in a Swedish University. *Higher Education Studies* 2(4):49–57.

Ezebilo, E., Hamago, L., and Yala, C. (2016). Assessment of market prices for residential properties in Port Moresby: Do location and property type matter? (PNG NRI Issues Paper 19). Port Moresby: Papua New Guinea National Research Institute.

Fishbein, M., and Ajzen, I. (1975). B*elief, attitude, intention, and behaviour: An introduction to theory and research*. Reading, MA: Addison-Wesley.

Fridlund, B., and Hildingh, C. (2000). Health and qualitative analysis methods. In B. Fridlund and C. Hildingh (Eds.), *Qualitative research, methods in the service of health* (pp. 13–25). Lund, Sweden: Studentlitteratur.

Fruet, G.M. (2005). The low-income housing cooperatives in Porto Alegre, Brazil: A State/Community partnership. *Habitat International* 29:300–324.

Garrod, G., and Willis, K. G. (1999). *Economic valuation of the environment*. Cheltenham: Edward Elgar.

Golsater, M., Sidenvall, B., Lingfors, H., and Enskar, K. (2011). Adolescents' and school nurses' perceptions of using a health and lifestyle tool in health dialogues. *Journal of Clinical Nursing* 20(17–18):2573–2583.

Hassan, G.F. (2011). The enabling approach for housing supply drawbacks and prerequisites—Egyptian experiences. *Alexandria Engineering Journal* 50(4):421–429.

Hofsten, A., Gustafsson, C., and Haggstrom, E. (2010). Care seminars open doors to deeper understanding—Nursing students' experiences of learning. N*ursing Education Today* 30(6):533–538.

Hsieh, H.F., and Shannon, S.E. (2005). Three approaches to qualitative content analysis. *Qualitative Research* 15(9):1277—1288.

Ibem, E.O. (2010). An assessment of the role of government agencies in public-private

partnerships in housing delivery in Nigeria. *Journal of Construction in Developing Countries* 15(2):23–48.

Ibem, E.O. (2011). Public private partnership (PPP) in housing provision in Lagos megacity region, Nigeria. *International Journal of Housing Policy* 11(2):133–154.

Ibem, E.O., and Aduwo, E.B. (2012). Public-private partnerships (PPPs) in urban housing in Nigeria: Evidence from Ogun State. *International Journal of Architecture and Urban Development* 2(2):5–14.

Independent Consumer and Competition Com¬mission. (2010). *PNG housing and real estate industry review: Final Report.* Port Moresby: Author.

Kelly, G.A. (1963). A theory of personality: The psychology of personal constructs. New York: W.W. Norton.

Klijin, E.H., and Koppenjan, J.M. (2000). Public management and policy networks: Foundation of a network approach to governance. *Public Management* 2(2):135–158.

Koppenjan, J.F.M., and Enserink, B. (2009). Public-private partnerships in urban infrastructure: Reconciling private sector participation and sustainability. *Public Administration Review* 69(2):284–296.

Mazouz, B., Facal, J., andViola, J.M. (2008). Public-private partnership: Elements for a project-based management typology. *Project Management Journal* 39(2):98–110.

Morrison, J. (2004). Where now for problem-based learning? The Lancet 363(9403):174.

Nao, L., and Ezebilo, E. (2017). Trunk infrastructure must be developed before building houses in Papua New Guinea: Lessons from Duran Farm. *PNG NRI Spotlight* 10 (7).

National Strategic Plan Taskforce (2009). Papua New Guinea Vision 2050. Retrieved from https://sustainabledevelopment. un.org/content/documents/1496png.pdf

Olsson, E., and Ljunghill, J. (1997). The practitioner and 'Naïve Theory' in intervention processes of social work. *British Journal of Social Work* 27(6):931–950.

Ong, H.C., and Leonard, D. (2002, April). Partnerships between stakeholders in the provision of and access to affordable housing in Malaysia. Paper presented at the FIG XXII International Congress, Washington D.C. USA.

Onyemaechi, P., and Samy, M. (2016). Motives and motivation for implementation of Public Private Partnerships (PPPs) in housing in Nigeria. *Mediterranean Journal of Social Science*s 7(2):149–157.

Otiso, M. (2003). State, voluntary and private sector partnerships for slum upgrading and basic service delivery in Nairobi City, Kenya. *Cities* 20(4):221–229.

Pessoa, A. (2006). Public-private sector partnerships in developing countries: Prospects and drawbacks. (FEP Working Paper No. 228). Portugal: Universidade do Porto, Faculdade de Economia do Porto.

Polit, D.F., and Beck, C.H. (2008). *Nursing Research: Generating and assessing evidence for nursing practice*. Philadelphia: Lippincott Williams & Wilkins.

Schreier, M. (2012). *Qualitative content analysis in practice*. Thousand Oaks, CA: Sage.

Scott, M. (2004). Building institutional capacity in rural Northern Ireland: The role of

partnership governance in the leader II programme. *Journal of Rural Studies* 20(1):49–59.

Shelter Afrique. (2013). Mavoko sustainable neighbourhood programme: Feasibility report, April 2013. Nairobi, Kenya: Shelter Afrique.

Sheridan, T., Manley, J., Macdonald, C., and Flynn, B. (2002). Sliding scale of support: Government intervention in housing. *Housing Studies* 17(2):337–347.

Tang, L.Y., Shen, O., and Cheng, E.W.L. (2010). A review of studies on public-private partnership projects in the construction industry. *International Journal of Project Management* 28(7):683–694.

Taylor S. (2007). Better service for taxpayers through public-private partnerships. *Cost Engineering* 49(6):28–30.

Tecco, N. (2008). Financially sustainable investments in developing countries water sectors: what conditions could promote private sector involvement? *International Environmental Agreements: Politics, Law and Economics* 8(2):129–142.

Tomlinson, F. (2005). Idealistic and pragmatic versions of the discourse of partnership. *Organizational Studie*s 26(8):1169–1188.

von Hoffman, A. (2016). To preserve affordable housing in the United States: A policy history. Cambridge, MA: Joint Centre for Housing Studies of Harvard University.

Wangi, T., and Ezebilo, E. (2017) Accessibility of customary land for residential property development in Papua New Guinea: Challenges and prospects. *PNG NRI Spotlight* 10 (1).

Wann-Hansson, C., Halberg, I.R., Klevsgard, R., and Andersson, E. (2005). Patients' experiences of living with peripheral arterial disease awaiting intervention: A qualitative study. *International Journal of Nursing Studies* 8(42):851–862.

Webster, T., Chand, S., and Kutan L. (2016). Property and housing policy development. (PNG NRI Discussion Paper 149). Port Moresby: Papua New Guinea National Research Institute.

Webster, T., and Duncan, L. (2009). The need for a national strategy to overcome the acute housing shortage situation. *PNG NRI Spotlight* 3 (1).

Yamamoto, R. (2007). Multi-level governance and public-private partnerships: Theoretical basis and public management. *Interdisciplinary Information Science* 13(1):65–88.

Yuan, J., Zheng, X., You, J., and Skibniewski, J.M. (2017). Identifying critical factors influencing the rents of public rental housing delivery by PPPs: The Case of Nanjing. Sustainability 9(3):345.

Zhang, X.Q. (2005a). Criteria for selecting the private-sector partner in public-private partnerships. *Journal of Construction Engineering and Management* 131(6):631–644.

Zhang, X.Q. (2005b). Critical success factors for public-private partnerships in infrastructure development. *Journal of Construction Engineering and Management* 131(1): 3–14.

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