



**UNIVERSITY OF CAPE TOWN**

**DEPARTMENT OF CONSTRUCTION ECONOMICS AND MANAGEMENT**

**AN EXPLORATORY STUDY OF PROJECT FINANCE AS A FUNDING MODEL FOR  
AFFORDABLE HOUSING DEVELOPMENT IN WINDHOEK, NAMIBIA**

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**A minor dissertation in partial fulfilment of the requirements for the degree:**

**Master of Science in Project Management by coursework**

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## **DEDICATION**

To my mother's Hilma Salomo and Johanna Nauyoma.

## **ABSTRACT**

This thesis aims to explore the current usage of the project finance model in Namibia, with the view to explore the viability of the project finance model as an alternative funding approach to the traditional funding structures currently used in affordable housing developments and other infrastructure sectors of the Namibian economy. The research identified a predictable and strong stream of cash flow from the project, healthy competition between equity and debt financier to reduce interest rates, end-user affordability and access to finance, good governance, and an attractive market as enabling factors for the project finance model to be effective in the Namibian context. The research further explored potential opportunities and challenges regarding the application of the model in Namibia. To gain insight into these research objectives, targeted interviews were conducted by key players and experts in the financing and housing sector. An extensive study of secondary sources, consisting of existing literature and data, was also undertaken. The analysis of findings from interviews and secondary sources shows that the project finance model is a viable instrument for affordable housing developments in Namibia. However, future users of the project finance model will need to adapt the model to fit the affordable housing financing criteria and, most importantly, identify and establish the sources of financing for the end-users.

# TABLE OF CONTENT

ACKNOWLEDGEMENT .....	iv
ABSTRACT.....	v
TABLE OF CONTENT .....	vi
LIST OF FIGURES .....	viii
LIST OF ABBREVIATIONS.....	ix
<b>1. INTRODUCTION.....</b>	<b>1</b>
1.1 INTRODUCTION TO THE STUDY .....	1
1.2 BACKGROUND OF THE STUDY .....	2
1.3 PROBLEM STATEMENT .....	5
1.4 SIGNIFICANCE OF THE STUDY .....	5
1.5 AIM OF THE STUDY .....	6
1.6 RESEARCH OBJECTIVES .....	6
1.7 RESEARCH QUESTIONS.....	6
1.8 RESEARCH PROPOSITION .....	7
1.9 RESEARCH LIMITATIONS.....	7
1.10 RESEARCH METHOD.....	7
1.11 RESEARCH ETHICS .....	8
1.12 STRUCTURE OF THE DISSERTATION .....	9
<b>2. LITERATURE REVIEW .....</b>	<b>10</b>
2.1 INTRODUCTION .....	10
2.2 AFFORDABLE HOUSING .....	10
2.3 HOUSING STATUS IN NAMIBIA.....	11
2.4 AFFORDABLE HOUSING PROVISION INSTITUTIONS IN NAMIBIA .....	16
2.5 HOUSING FINANCE SCHEMES IN NAMIBIA .....	17
2.6 PROJECT FINANCE .....	18
2.7 CONDITION FOR PROJECT FINANCE TO THRIVE.....	23
2.8 PROJECT FINANCE IN NAMIBIA.....	24
2.9 PROJECTS FUNDED BY THE PROJECT FINANCE MODEL IN AFRICA.....	27
2.10 CONCLUSION .....	29
<b>3. RESEARCH METHODOLOGY .....</b>	<b>31</b>
3.1 RESEARCH APPROACH .....	31
3.2 RESEARCH DESIGN.....	32
3.3 SAMPLING .....	33
3.4 DATA COLLECTION .....	36
3.5 DATA ANALYSIS .....	37
3.6 CONCLUSION.....	40

<b>4.0 RESEARCH ANALYSIS AND DISCUSSION .....</b>	<b>41</b>
<b>4.1 SUMMARY OF THE DISCUSSIONS.....</b>	<b>41</b>
<b>4.2 PRESENTATION OF FINDINGS.....</b>	<b>43</b>
<b>4.3 THEME 1: THE PROJECT FINANCE MODEL IN NAMIBIA.....</b>	<b>46</b>
<b>4.4 THEME 2: FEASIBILITY STUDIES ON THE PROJECT FINANCE MODEL IN NAMIBIA .....</b>	<b>51</b>
<b>4.5 THEME 3: BENEFITS AND CHALLENGES OF THE PROJECT FINANCE MODEL .....</b>	<b>53</b>
<b>4.6 THEME 4: REGULATORY FRAMEWORKS FOR THE PROJECT FINANCE MODEL .....</b>	<b>55</b>
<b>4.7 THEME 5: AFFORDABLE HOUSING IN WINDHOEK.....</b>	<b>58</b>
<b>5. RESEARCH CONCLUSIONS AND RECOMMENDATIONS.....</b>	<b>64</b>
<b>5.1 REVIEW OF RESEARCH OBJECTIVES.....</b>	<b>64</b>
<b>5.2 CONCLUSIONS .....</b>	<b>66</b>
<b>5.3 RECOMMENDATIONS AND FUTURE WORK .....</b>	<b>67</b>
<b>APPENDIX A - RESEARCH INFORMATION SHEET .....</b>	<b>75</b>
<b>APPENDIX B - CONSENT FORM.....</b>	<b>77</b>
<b>APPENDIX C - SEMI-STRUCTURED INTERVIEW OUTLINE .....</b>	<b>79</b>
<b>APPENDIX D - SIGNED ETHICS CLEARANCE FORM .....</b>	<b>81</b>
<b>APPENDIX E - SAMPLE INTERVIEW TRANSCRIPT .....</b>	<b>82</b>

**LIST OF TABLES**

Table 2.1: Current numbers of formal housing per region in Namibia.....15

Table 2.2: The estimated amount for an infrastructure project in Namibia.....26

Table 2.3: Projects undertaken through PPP in Namibia.....28

Table 2.4: Project funded through the project finance model or arrangement .....30

Table 3.1: List of respondents to finance and housing interviews.....36

Table 3.2: The six-step of analysis thematic analysis.....39

Table 4.1: Summary of the research findings.....41

Table 4.2 Framework of the thematic analysis of the interview data set.....45

**LIST OF FIGURES**

Figure 2.1: Projected demand for formal housing in the different regions of Namibia.....16

Figure 2.2: A typical project finance structure.....22

Figure 4.1: Word frequency in the coded data.....43

Figure 4.2: Indicates the coded structure used in NVivo..... 44

## **LIST OF ABBREVIATIONS**

DBN - Development Bank of Namibia

DFI - Direct Foreign Investment

EBE - Engineering and the Built Environment

FNB - First National Bank

GDP - Gross Domestic Product

ICT - Information Communication Technology

IJ - Infrastructure Journal

IPFA - International Project Finance Association

MW - Megawatt

NDP4 - Namibian Fourth National Development Plan

NHE - National House Enterprise

NPC - National Planning Commission

NAMFISA - Namibia Financial Institutions Supervisory Authority

PPP - Public-Private Partnership

R - Rand

SDFN - Shack Dwellers Federation of Namibia

SPV - Special Purpose Vehicle

UN - United Nation

USD - United States Dollars

# 1. INTRODUCTION

## 1.1 INTRODUCTION TO THE STUDY

While developed countries primarily focus their financial budgets on efforts to upgrade, repair, replace, and maintain their ageing infrastructure systems, emerging economies, mainly those in Asia and Africa, have been aggressively focusing on building new infrastructure projects to facilitate local economic growth and prosperity (Dong, et al., 2011). In Namibia, specifically, the Namibian Fourth National Development Plan (NDP4) identified transport, electricity, water, housing, and ICT as areas where infrastructure development would catalyze achieving the country's economic development goals and prosperity (Niishinda et al., 2014). A survey conducted in 2014 on infrastructure projects in Namibia estimated that around R 22.6 billion will be required to adequately fund infrastructure projects running in the period from 2014 to 2030, raising questions on where the funds for these necessary projects would be sourced (Niishinda et al., 2014).

One potential solution can be found in using project finance as a funding instrument. Esty (1999) states that there has been an increase in large-scale projects worldwide that are funded by project finance, and, in 2018 alone, the *Global Project Finance Review* indicated that project finance globally funded 871 significant projects at a total cost of R 3.895 billion (Thomson Reuters, 2018). Finnerty (2007, p1) defines project finance as "the raisings of funds on a limited-recourse or non-recourse basis to finance an economically separable capital investment project in which the providers of the funds look primarily to the cash flow from the project as the source of funds to service their loans and provide the return of, and a return on, their equity invested in the project." In their study, Ahmed

and Fang (1999) explain that the structuring strategy of project financing is used to raise foreign funds for large-scale projects and aims to address investment needs in infrastructure and other industries where there is a deficit.

Other research studies show that project funding can minimize borrowing costs by addressing leverage-induced underinvestment and reducing the cost of details, opportunity conflicts, the risk for principal agencies, country risks for emerging market ventures, financial crisis costs, and corporate taxes (Esty, 1999). Focusing on affordable housing as one of the infrastructure sectors identified as requiring financing in Namibia, this research explores project finance as a potential funding model for the current housing crisis in Namibia's capital, Windhoek.

## **1.2 BACKGROUND OF THE STUDY**

The provision of affordable housing in Namibia has long been an ongoing concern nationally, as the demand continues to outstrip supply in almost all parts of the country, with the highest demand found in the City of Windhoek (Remmert & Ndhlovu, 2018). The affordable housing problem started after independence in 1990 when the country saw an influx in rural to urban emigration while housing supply steadily plateaued (Chiripanhura, 2018). The *Namibia Household Income and Expenditure Survey of 2015/16* quantified that 30 per cent of the population live in improvised housing in urban areas due to the lack of affordability of existing houses (Namibia Statistics Agency, 2016). As of 2017, the review of The National Development Plan 4 (NDP4) of Namibia indicated a shortage of 300,000 houses countrywide (Government of Namibia, 2017). *The First National Bank (FNB) Housing Index* shows that, in 2017, the average house price in Windhoek reached R 1,187,000. This price has increased by 46 per cent from five years earlier (First National

Bank, 2017). This increase in the demand in the housing market is driven by the emerging middle class, speculative investments, and a supply-demand imbalance, which excludes a large portion of the population living in informal settlements (Bank of Namibia, 2017). In their research, Asino and Christensen (2018) also provide a similar conclusion, affirming that the main challenges in the Namibian housing sector are exorbitant prices, which are partly due to mismatches between the demand for and the supply of housing. The imbalance in the supply and demand economies of scale for the housing sector has created a national crisis, with affordability being the main predicament.

The UN-Habitat Report (2005) indicated that housing has many benefits for households, such as security of tenure, improvement of infrastructure, security against loans, and a better standard of living for the inhabitants. The UN-Habitat report also suggested that low-income earners' access to housing and adequate accommodation is a crucial aspect of growth within a dominant system where affordable shelter is insufficient and proper shelter is unavailable (UN-Habitat Report, 2005). For national economies to develop and stay globally competitive, there is a need for continuous investment in their industries and infrastructure sectors (Sorell, 2008). To reduce or minimize the economic risks, in particular, and promote economic activities, project finance is used by some countries to develop infrastructure and industrial projects (Sorell, 2008).

Before the 1990s, project finance was mainly used to fund large-scale investment projects, such as off-shore oil fields and mining operations (Finnerty, 2007). However, after the 1990s, project finance became a well-established funding instrument with a wide range of asset types and investment volumes and was found in various geographic markets (Gatti, 2008). Project finance has been considered a novel funding instrument

because it involves providing loans to finance projects, with the loan repayments tied up to the projected revenue with little dependence on a company's balance sheet, which thus prompts economic simulation (Fadhley, 1991). Project finance helped finance new investments by structuring the financing around the project's own operating cash flow and assets without additional sponsor guarantees (International Finance Corporation, 1994). Thus, the techniques help alleviate investment risk and raise finance relatively low to benefit sponsors and investors alike (International Finance Corporation, 1994). According to Benkovic & Milosavljevic (2009), project finance is a funding model that can be implemented in developed countries to maximize the results within the financial means available, while, in developing countries, the model can be used to finance infrastructure facilities where the financial resources are not strong enough. Thus, project finance has seen a rise in its usage to foster economic growth. This statement is particularly true in low-income countries, where financial development and governance are weak (Kleimeiera & Versteega, 2009). The structuring methods of project financing are also used to raise foreign funds for large-scale projects and meet the requisite investment needs in infrastructure and other sectors (The International Finance Corporation, 1999).

Project finance is always operated through a Special Purpose Vehicle (SPV) linked to the parent company, sponsors, financiers, government institutions, and contractors involved in the project. Awareness of the project finance model as a funding model in the property market can significantly benefit the housing development industry and, more importantly, address the affordable housing problems in Namibia. For the model to effectively work, the environment will need to be set – this includes investigating the viability of the projects,

the projected return on investment, the various risks and how they will be mitigated, and the potential investors and other parties involved in the project finance structure. This research aims to explore the possible application of project finance in affordable housing delivery and assess whether systems are in place for this funding model to work.

### **1.3 PROBLEM STATEMENT**

Current housing data shows a somewhat worrisome trend, putting the current backlog of housing units at 300,000 in Namibia (Government of Namibia, 2017) and showing that the delivery of affordable housing is still unattainable through existing financing mechanisms. The funding for affordable housing comes in direct investments by governments or through equity or debt financing from local financial institutions. Funding is an essential element in any given project and a major determining factor for success or failure. For financial instruments such as project finance to work, the environment needs to be conducive to implementation. Projects funded on this basis will need to include solid financial policies and institutions to mitigate risk factors – thereby maximizing the viability of projects.

### **1.4 SIGNIFICANCE OF THE STUDY**

This research explores a potential funding model that could resolve the current housing backlog facing Windhoek and Namibia at large. The study offers valuable insights into the effectiveness and benefits of project finance in the housing sector in Namibia. The outcome of this research will help promote an appreciation and adoption of project finance in the housing and other infrastructure sectors.

## **1.5 AIM OF THE STUDY**

The study aims to assess whether the project finance model is a viable financing instrument for the Windhoek affordable housing sector. The study further aims to investigate whether the current environment and conditions of the housing sector would allow for the implementation of the project finance model or whether some kind of reforms would be necessary to allow for the adoption of the project finance model. The potential opportunities and challenges in the application of the project finance funding model are also explored.

## **1.6 RESEARCH OBJECTIVES**

The key objectives of this research are listed below:

- To explore the use of the project finance model as a viable funding instrument for affordable housing development in Namibia's capital, Windhoek.
- Establishing the optimum environment needed for project finance to thrive exists in Windhoek's economy and housing sector.
- To assess the opportunities and challenges that the project finance model is likely to encounter given the current business climate in Namibia.

## **1.7 RESEARCH QUESTIONS**

Given the objectives listed in Section 1.6, the following research questions were explored:

- What is the current status of the project finance model in Namibia?
- Is project finance a viable funding model for affordable housing development in Windhoek?

- What opportunities are offered by project finance?
- What challenges are likely to occur in implementing project finance within the context of Windhoek, Namibia?

## **1.8 RESEARCH PROPOSITION**

With limited funding options available in the Namibian affordable housing market, project financing should be considered a potential financing model.

## **1.9 RESEARCH LIMITATIONS**

- The research will only focus on project finance in the context of funding for affordable housing.
- The research interview size had only 7 participants.
- The Covid-19 pandemic reduced the original number of targeted respondents, as some of the target respondents were hard to reach due to working from home, which made it difficult to get in contact with them, and the most interviewed were conducted via virtual methods.

## **1.10 RESEARCH METHOD**

The research is explorative in nature, which intends to answer the research questions in Section 1.7 and obtain results through the qualitative research methods outlined below:

- The researcher carried out a literature review on project finance matters as a financing instrument for housing developments.

- Conducted semi-structured interviews and with project officers/financiers at financial institutions, local authorities, property developers, property companies, project management companies, construction companies, public institutions, and any other relevant institutions.
- Analyzed and interpreted relevant data using thematic analysis to conclude research and make recommendations.

### **1.11 RESEARCH ETHICS**

An exploratory study investigates topics that are not well defined. Therefore, a qualitative method will be adopted for data collection through interview questions predetermined by the researcher and approved by the research supervisor. Human participants in project finance and housing involved in the research gave their professional views and opinions on the research topics. The study was done ethically; all respondents were informed about the research aims to ensure voluntary participation, and all participants signed a consent form before the interviews took place. The researcher confirmed that the participants knew their right to participate while not using unethical means to solicit participation. No participant received any form of remuneration for the participation in this study, and the researcher ensured that the participant's confidentiality was maintained throughout the research. The researcher took necessary care to protect the right of respondents by following the correct procedures to obtain institutional permission to carry out the interviews and exercised the care required to ensure that the confidentiality of participants is maintained. All of the above are upheld by the University of Cape Town

under the Faculty of Engineering and the Built Environment (EBE) ethics policy to ensure that the highest ethical standards are maintained throughout.

## **1.12 STRUCTURE OF THE DISSERTATION**

Chapter 1 sets the study's stage by describing its background and the challenge that prompted it. The objectives of the study and research question are also laid forth in this chapter. This chapter also discusses the study methodologies, limitations, and ethical issues.

Chapter 2, The second chapter reviews significant literature on Namibian affordable housing and project finance. The goal of the literature review section was to integrate and synthesize material to show comprehend the theoretical underpinnings of the research issue.

Chapter 3, Discusses how to utilize a qualitative method for data collection; the researcher used semi-structured interviews for data collection and then applied thematic techniques to analyze the data.

Chapter 4, Summarizes the study findings and employs thematic analyses to analyze the data obtained.

Chapter 5 includes a review of the study's aim and a conclusion of the discussion and suggestions. The study concludes with a complete list of references and all supporting appendixes.

## **2. LITERATURE REVIEW**

### **2.1 INTRODUCTION**

Firstly, the literature review will look into the Namibian housing sector, with a closer look into the current status of the Windhoek housing market and a focus on the existing financing instruments applied in that market. The second part of the review will unpack the overview of project finance as a funding instrument for infrastructure development and explore the environmental and systematic policy requirements for project finance to thrive. The last part of the literature review will explore the current policies in place in Namibia and review projects funded by project finance in Africa.

### **2.2 AFFORDABLE HOUSING**

Housing is an essential socio-economic element traditionally promised as a constitutional right in national constitutions (Chiripanhura, 2018). Haiping (2018) stated that housing has a crucial role in creating and sustaining permanent human settlements, while Remmert & Ndhlovu (2018) affirmed that housing is linked to many areas of human well-being and health and development. Housing has many functions; it shelters people, offers protection against the elements, and fulfils other social functions (Remmert & Ndhlovu, 2018). The United Nations' habitat affirms that housing has many benefits for households, including tenure security, infrastructure improvement, security against loans, and a better standard of living for the inhabitants (UN-Habitat Report, 2005).

Housing is also a significant economic investment for households, as it reflects and reinforces social and economic structures (Michelson & Vliet, 2000). Milligan et al. (2009)

defined affordable housing as a price range that assists lower-income households in obtaining and paying for appropriate housing without experiencing undue financial hardship. Chiripanhura (2018) states that affordability is determined by price and household factors like income level, housing quality, tenants' choice, availability of services and amenities, and the quality of infrastructure. On the other hand, housing need refers to the number of houses required, given the growth in households derived from population and household size projections, making no allowance for affordability (Hewes, 2017).

### **2.3 HOUSING STATUS IN NAMIBIA**

The Namibian National Development Plan 4 (NDP4) put the Namibian housing units' backlog at 300,000 (Government of Namibia, 2017). According to the Namibia Statistics Agency, the urban population has increased from 28% in 1991 to 42% in 2011 and is currently estimated to be around 50% nationwide (Chiripanhura, 2018). The main challenges in the Namibian housing sector are exorbitant prices, which are partly due to mismatches between the demand for housing and the supply of housing (Asino & Christensen, 2018). There are also issues with the provision of sufficient land, particularly in urban areas, as the demand for serviced urban land has outstripped the delivery of land (Asino & Christensen, 2018). According to Amadhila (2014), the problem is further complicated by the development of land and delivery processes, as it can take up to five years from the planning to the actual sale of land. Another challenge households face is the lack of affordability of existing houses (Chiripanhura, 2018). Owing to limited disposable income, insecurity, and exclusion from traditional mortgage loan services,

among other reasons, about 70% of the Namibian population cannot access urban freehold property (Namibia National Housing Policy, 2009). According to the National Planning Commission (NPC), there has also been a lack of government funding for housing programs that target low-income and middle-income groups (Asino & Christensen, 2018).

Central to the achievement of adequate provision and distribution of housing is managing the relationship between the price of housing and the capacity of households to pay for their housing (Malpass & Murie, 1999). Every country has developed its policies and programs for housing growth and created its innovative approach to address its unique housing problems (Napier et al., 2011). The City of Windhoek is currently faced with a lack of finance, personnel, qualified contractors, and increasing urbanization (City of Windhoek, 2016). These limiting factors have led to inflated property prices, widespread squatting, illegal land occupation and land grabbing, dangerous housing conditions, and overcrowded residential areas, among a host of other land-related quagmires leading to the city of Windhoek being unable to keep pace with the supply of affordable housing (Nakweenda, 2014). There are three fundamental problems to the housing situation in Windhoek, as stated by Chiripanhura (2018):

- First, many households lack sufficient funding for owning or renting homes, partially because the current housing supply is smaller than the demand for housing, making housing too costly for many households.
- Second, house prices are too high and have been rising rapidly over the last few years.

- Third, many Namibian citizens are omitted from the housing finance sector because they have low wages or are unemployed.

The affordability, provision, and price of housing are affected by the relationship between supply and demand, as a change in either, the supply or demand will impact the price positively or negatively (Torab, 2018). The unbalanced relationship between supply and demand for housing is caused by several factors, such as urban immigration, population growth, land availability and scarcity, economic growth, income factors, and interest rates (Torab, 2018). Chiripanhura (2018) illustrates that the supply side of housing relies on the rules laid down by the structure of land use and planning system, while the demand side of the housing is typically defined by housing commodification, which restricts the accessibility and availability of (quality) housing to more impoverished areas of the population. In Namibia, there are issues with the provision of sufficient land, and, particularly in urban areas, there is a shortage of affordable land (Asino & Christensen, 2018). Napier et al. (2011) stated that there had been a drastic increase in residential property prices over the past two decades while there has been a shortage in supply, setting the stage for various knock-on effects within the Namibian housing market (Napier et al., 2011).

The migration from the rural to urban areas, primarily due to access to better living conditions and employment opportunities available in cities, has also caused the demand for urban housing to rise (Napier et al., 2011). The unavailability of serviced land has hindered the land delivery process, and the increase in the cost of building materials has led to the rise in the price of construction of housing units (Napier et al., 2011). In addition,

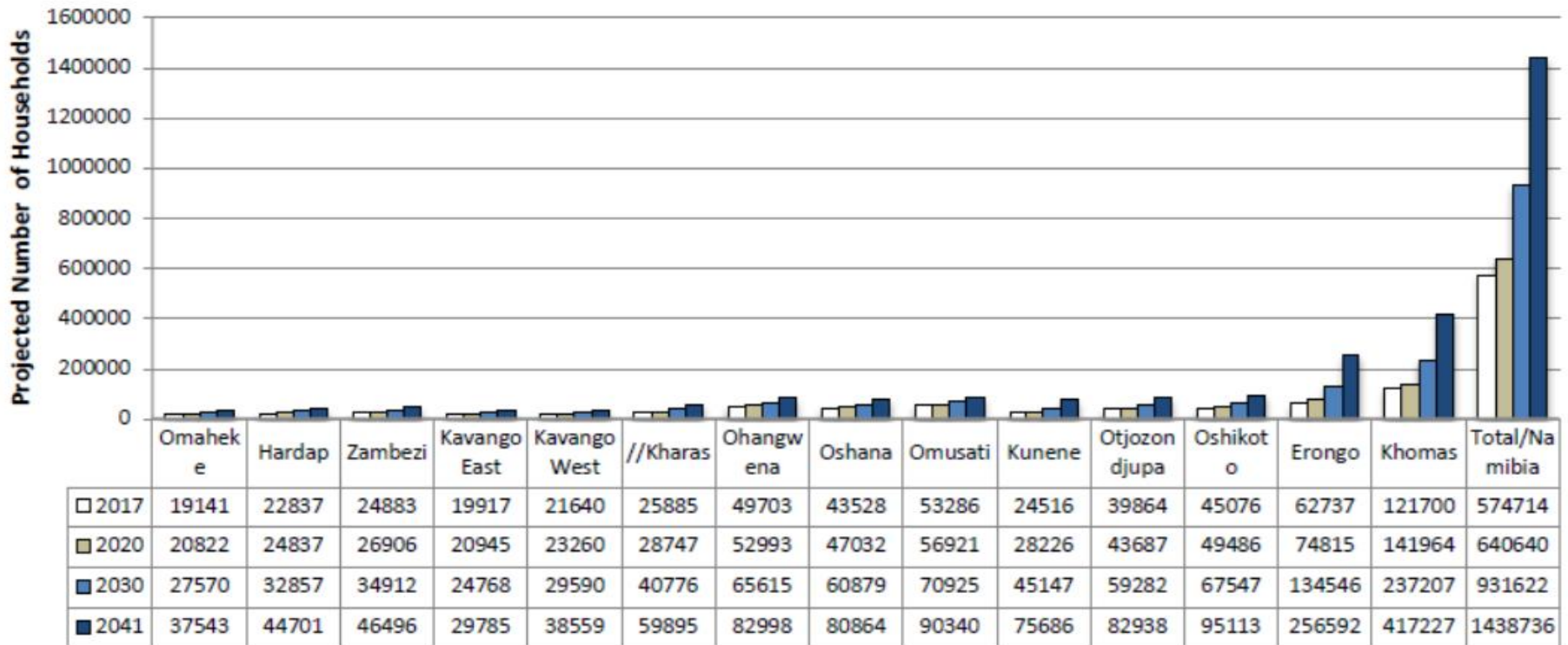
there is a long development process: house supply begins with land surveying and land servicing. This is accompanied by the construction of housing units and, once finished, the housing units are ready for occupation (Chiripanhura, 2018).

**Error! Reference source not found.** represent the current housing supply per region in Namibia as of 2017 adpted from Asino & Christensen, (2018, p. 8) . The Khomas region, where Windhoek is located, currently has 121,700 formal houses.

REGION	2001	2011	2016	2017
Omaheke	12,590	16,174	19,000	19,141
Hardap	15,039	19,307	22,207	22,837
Zambezi	16,839	21,283	24,244	24,883
Kavango East	15,406	18,011	19,586	19,917
Kavango West	15,061	18,730	21,125	21,640
Karas	15,481	20,988	24,996	25,885
Ohangwena	35,958	43,723	48,652	49,703
Oshana	29,557	37,284	42,419	43,528
Omusati	38,202	46,698	52,127	53,286
Kunene	12,489	18,495	23,391	24,516
Otjozondjupa	25,338	33,192	38,665	39,864
Oshikoto	28,419	37,400	43,695	45,076
Erongo	27,496	44,116	59,161	62,737
Khomas	58,580	89,438	115,610	121,700
<b>TOTAL</b>	<b>346,455</b>	<b>464,839</b>	<b>554,878</b>	<b>574,713</b>

Source: Asino & Christensen, (2018, p. 8)

**Error! Reference source not found.**, the figure represents the projected demand for housing in Namibia adapted from Asino & Christensen, (2018, p. 8), with a highlight on the Khomas region, and estimates that there will be a demand of 141,964 households in 2020, 237,207 homes by 2030, and 417,227 households by 2041.



Source: Asino & Christensen, (2018, p. 9)

## 2.4 AFFORDABLE HOUSING PROVISION INSTITUTIONS IN NAMIBIA

Namibia has various housing institutes and programs that provide affordable housing, as listed below.

*The National Housing Enterprise* is a government state-owned company mandated to provide affordable housing for individuals, mainly government employees, who earn an income between R 4,000.00 and R 30,000.00. The institution is characterized by a slow pace of housing delivery and only develops about 4,000 units on average a year (Guillermo, 2018).

*The Build Together Program* was established in 1992 and is a state-supported, micro-credit lender, land, and housing development program (Guillermo, 2018). The program is managed by the Ministry of Regional and Local Government, Housing, and Rural Development and can be accessed through local authorities (Guillermo, 2018).

*The Shack Dwellers Federation of Namibia* emerged from an association of housing groups established in the 1980s. This program consists of several groups that pool resources to develop blocks of land, build housing, improve living conditions, and provide other non-housing-related loans (Guillermo Delgado, 2018).

*Private Developers* include land developers, mass housing developers, Housing Private-Public Partnership (PPP) between private individuals and government, and personal property developers who build affordable housing using debt and equity finance.

## **2.5 HOUSING FINANCE SCHEMES IN NAMIBIA**

### **Pension Funds**

Pension funds play a significant role in the Namibian financial market, providing vital long-term funding to the economy through direct and indirect investment in domestic enterprises (Wilson & Wood, 2019). According to (Wilson & Wood, 2019), pension funds have only invested 2.1% of their funds' assets in the property sector.

### **Local Savings Schemes**

The Shack Dwellers Federation of Namibia (SDFN) is a network of 605 small-scale saving schemes that, as of 2019, had 20,400 members across the country (Wilson & Wood, 2019). The SDFN solicits funds from its savings schemes, the central government, local private companies, and international donors and is affiliated with Shack Dwellers International (Wilson & Wood, 2019).

### **Government Direct Investment**

The Namibian government continues to prioritize potential solutions to the lack of decent housing, which the Central Bank of Namibia estimated sits with a backlog of 300,000 housing units and is growing with an annual growth rate of 3,700. The government recently invested USD 1 billion in a failed mass housing program (Wilson & Wood, 2019). The project failed due to a lack of finance from the government in the mid-stages, poor building works from some contractors and poor management of the overall program.

### **Development Bank of Namibia**

A key local institutional investor in the housing sector has been the Development Bank of Namibia, a government-owned bank. In 2016, (DBN) gave R35 million of its total R2 billion lending budget toward the housing sector. This increased significantly in 2017 when DBN

approved R436 million in loans to housing developments in six regions, which came to 10 per cent of their total loans, as the bank sought to meet the need for affordable housing (Wilson & Wood, 2019).

### **Direct Foreign Investment (DFI)**

The primary foreign investments in the housing sector have been an R1 billion loan from the African Development Bank to the Development Bank of Namibia (DBN) and DFI investments of USD 20 million each from the UK and Germany (Wilson & Wood, 2019).

### **Private Equity**

Namibia is a regular beneficiary of private equity funds relative to other sub-Saharan countries, as it has the necessary macroeconomic policy and regulatory structure, and working capital markets (Wilson & Wood, 2019).

### **Commercial banks**

Commercial banks offer various property financing via multiple products, such as mortgage finance, capital finance, and development finance.

## **2.6 PROJECT FINANCE**

Project finance is defined by Yescombe (2002, p1) as: "a method of raising long-term debt financing for major projects through "financial engineering," based on lending against the cash flows generated by the project alone. It depends on a detailed evaluation of a project's construction, operating and revenue risks and their allocation between investors, lenders and other parties through contractual and other arrangements."

Project finance is not a new financial product, as can be traced back to the Middle Ages when the British Crown financed silver mines with non-recourse loans from Italian merchant banks (Esty et al., 2014). However, it was only in the early twentieth century when project finance took off due to the explorations of oil fields in the United States (Esty et al., 2014). In the 1980s, project finance became a more prominent funding model, funding over 6000 large energy projects internationally with more than 2.5 trillion USD (Subramanian & Tung, 2016). Due to the scope and complexity of large projects, the project financing model became a prominent and attractive funding model (Benkovic & Milosavljevic, 2009). The model has since been implemented in developed countries to maximize profits, while, in developing countries, project finance has been used to fund large infrastructure projects where financial resources are not substantial or widely available (Benkovic & Milosavljevic, 2009). This makes it a viable funding option for large-scale infrastructure and other development projects, which provide an essential pillar for economic growth (Benoit, 1996).

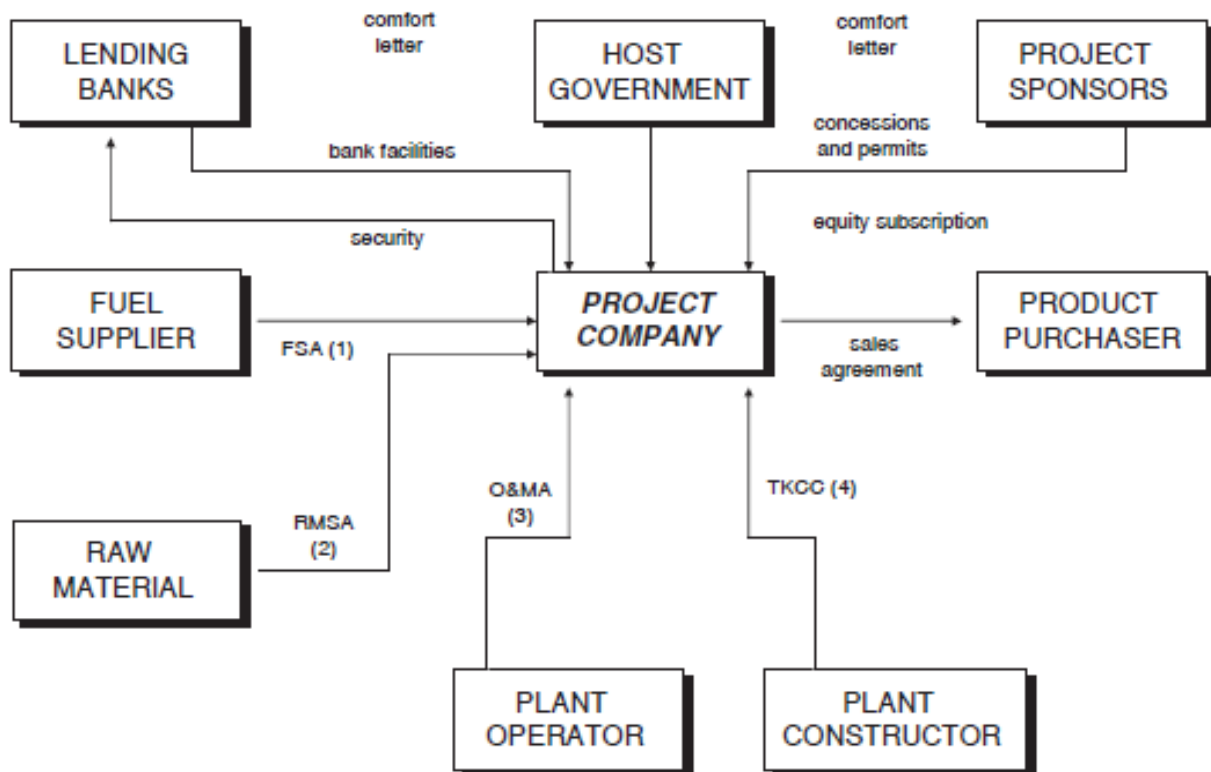
Project finance shares in the global market have been increasing and have appeared as one of the investment vehicles in emerging markets (Megginson, 2010). This growth has been particularly robust in Asia, with volumes rising 57 per cent from 2008 to a new high of U\$104.0 billion in 2009 when India overtook the United States as the most significant single target for the first time (Megginson, 2010). In developing economies, project finance has traditionally been used in mining and oil and gas projects, as these types of projects are mainly funded by large-scale foreign currency, which suits project finance, as their output has a global market and the price is in hard cash (Ahmed & Fang, 1999).

The project finance model is structured to meet the project specification, and the repayment process of the finances relies on the completed project cash flow and assets (International Finance Corporation, 1994). Its structure centres on the project's viability rather than the sponsor's financial standing (Benoit, 1996). The transactions of project finance are characterized around the structural element of; (a) varying forms of investment, (b) diverse participants, including governments, and (c) an array of benefits and risks (Benoit, 1996). A project finance scheme would mainly involve a legally independent project company, usually established by another existing company in the commercial sector, that builds and operates the infrastructure or asset (Sorell, 2008).

There are two basic types of project finance: nonrecourse project finance and limited recourse project finance (International Finance Corporation, 1994). These types of project finance ensure that the loan structure is based primarily on the project cash flow for repayment, while the project interests, rights, and assets are only held as secondary security (Annamalai & Jain, 2013). One of the main advantages of project finance is the off-balance-sheet financing, which does not affect the credit of the shareholders, but instead shifts most of the project risk to the lenders, who, in exchange, obtain higher return margins than regular corporate lending institutes (World Bank Group, 2016). This results in the creditors basing their decision on the overall strength of the sponsor's reputation and rather than their balance sheet (Annamalai & Jain, 2013). The project finance model also offers more transparent and efficient options for countries seeking to raise private participation in economic activity and investment (International Finance Corporation, 1994). The risks and returns are not borne only by the sponsor but also the

other investors, such as the quasi-equity investors, equity holders, government, and debt providers (International Finance Corporation, 1994).

**Error! Reference source not found.** adapted from Gatti (p. 30,2008) shows a typical project finance structure, including the parties and the type of contracts involved. The particular vehicle company will be the project's driving force at the centre of the project finance structure. The Project Company will build and operate the undertaken asset, while the government mainly provides political security, and the banks finance the project. The figure also details the roles of suppliers and contractors and, finally, the product user who will purchase and make use of the product.



Source: Gatti (p. 30,2008)

Participants involved in project finance vary depending on the type of project being undertaken. But, according to (Gatti, 2008) project finance participants are typically divided into three groups: the private sector participants, the governments and governmental entities, and the multilateral institutions. In more recent years, project finance has become a standard application in PPP, in which the financing bank has little or limited access to the sponsors of the PPP project, and loan repayment relies primarily on cash flow over the project service duration. (World Bank, 2014). PPP is a collaboration between the private and public sectors that aims to deliver projects that benefit the public by allowing it to utilize private sector funds and technical and managerial competence that it may lack to provide infrastructure while, at the same time, transfer the risk to project parties (Owolabi et al., 2020).

Project finance comes from different sources and organizations. However, it is mainly provided in debt and equity by commercial banks, development banks, pension funds, international financing organizations, government bond authorities, insurance companies, and customers of the project sponsors (Hoffman, 1989). The equity source of project finance is typically centred on the share of the project profits and the appreciation of the value of the project, while the debt of project finance is centred on the provision of loans to assist in the funding of the project (Hoffman, 1989). Another form of investment in project finance is Quasi Equity, a form of debt that enjoys many benefits of equity. This form of finance includes convertible debentures, preferred stock, and other forms of investment that have the attributes of both debt and equity (Hoffman, 1989).

Contractors, Suppliers, and Purchasers are other sources of project finance. Their investment comes in contractors and suppliers of services, inputs, and the product's

purchasers (Hoffman, 1989). Lastly, sureties, which involve the projection of investment against specified financial losses (Hoffman, 1989), also fund project financing. Project finance continues to play a significant role in the infrastructure development sectors, mainly in the power, oil and gas, transportation, mining, and leisure and property industries (Refinitiv, 2019).

## **2.7 CONDITION FOR PROJECT FINANCE TO THRIVE**

According to the (International Finance Corporation, 1994), project finance is primarily successful in countries where business dealing is transparent, contractual obligations are respected, and existing frameworks can resolve disputes fairly. Project finance policies and regulatory frameworks are well-defined to create a sound, stable, regulatory, and macroeconomic environment, attracting the long-term investment market mechanisms needed to create the right incentives and help state-owned companies deliver (International Finance Corporation, 1994). Project finance also thrives when governments facilitate private financing for projects by providing a conducive environment for private investors to conduct business in a stable climate (International Finance Corporation, 1994). Whyte (2019) states that an essential condition for project finance is understanding the political environment in which the project will be undertaken. It is also critical that the host government is fully invested and committed to the project's duration and to fulfil their obligations in the project, and that there is integrity in the procurement process (Whyte, 2019).

## 2.8 PROJECT FINANCE IN NAMIBIA

Project Finance in Namibia is not well defined, and there is limited information on it. However, since project finance mainly deals with large and long-term infrastructure projects, Namibia has a wide range of infrastructure in place, with the primary sponsor for these projects primarily being the government of Namibia (Niishinda et al., 2014). This funding from the government mainly comes from budget financing, Development Finance Institutions (DFIs) Loans, external concessional loans, and the issuance of bonds (Niishinda et al., 2014).

Namibia has recognized that investment in infrastructure has a significant impact on economic growth, and the current infrastructure investment-to-GDP ratio indicates more investment in the infrastructure sector is required (Niishinda et al., 2014). A survey conducted in 2014 by the Bank of Namibia on infrastructure funding needs indicated that approximately R 223.6 billion is required by 2020.

**Error! Reference source not found.** Table 2.2: The estimated amount for an infrastructure project in Namibia represents the different types of infrastructure and the estimated funds they require by 2020. As this project aims to focus on affordable housing, the emphasis is placed on the column that states that R37.5 billion will be required for housing development in Namibia.

TYPE OF INFRA-STRUCTURE	2014/15	2015/16	2016/17	2017/18-2019/20	GRAND TOTAL
Road Infrastructure	9,649.90	11,689.80	10,359.50	91,652.30	123,351.50
Rail Infrastructure	4,572.30	5,659.80	4,136.60	3,492.30	17,861.00
Port Infrastructure	2,300.00	2,500.00	2,400.00	53,600.00	60,800.00
Airport Infrastructure	810	1,080.00	2,810.00	5,000.00	9,700.00
Energy Infrastructure	1,902.50	11,423.40	13,350.30	24,161.20	50,837.40
Water Infrastructure	101.70	395.20	540.90	592.90	1,630.70
ICT Infrastructure	737.00	608.00	642.00	701.00	2,688.00
Housing Infrastructure	2,500.00	2,500.00	2,500.00	37,500.00	45,000.00
Grand Total	14,891.10	26,616.40	27,392.70	154,607.40	223,507.60

Source: Niishinda, et al. (2014, p19)

Due to the continuous growth in the Namibian economy and the ever-ageing infrastructure, further infrastructure investment and financing will be required to complement ongoing government efforts (Niishinda et al., 2014). The government initiated the Public-Private-Partnerships (PPP) policy in 2017, with which it intends to fully utilize resources from both the public and private sectors to deliver infrastructure. The objectives of the PPP policies, according to the *Public-Private Partnership Act 4 of 2017* (The Republic of Namibia, 2017), are to:

- Encourage involvement of the private sector in the procurement of public services through public-private partnership projects;
- Encourage private sector participation in the provision of assets or resources in public infrastructure;
- Create mechanisms to maintain oversight and governance of projects chosen for implementation through the public-private partnership model;

- Allow the development of sufficient institutional capacity to process and control public-private partnership projects;
- Promote accountability, openness, equality, and competitiveness in the process of awarding public-private partnership projects; and
- Provide public authorities' guiding principles, structure, and practices in proposing, planning, procuring, overseeing, and executing public-private partnership initiatives.

According to (Yescombe, 2007) some of the same causes that have fueled the expansion of PPPs have also fueled the growth of project financing. It is possible to identify certain consecutive phases of growth in project-financing techniques and coverage (Yescombe, 2007). As a result, encouraging investors to employ project finance for PPP projects benefits both the private sector investors and the public authority (Yescombe, 2007).

**Error! Reference source not found.** adapted from PPP knowledge lab (2020), present the currently PPP projects under execution in Namibia, but they are taking place on a limited scale. However, since the enactment of the PPP Act, various projects have been implemented under the PPP framework.

PROJECT NAME	SECTOR	FINANCIAL CLOSURE YEAR	INVESTMENT (RAND MILLION)
Mariental Solar plant	Electricity	2018	980
Ejuva One and Ejuva Two Solar Plants	Electricity	2017	448
Rosh Pinah PV Plant	Electricity	2017	140
Karibib Solar Power Plant	Electricity	2017	131
Northern Electricity	Electricity	1996	56
Reho-Electricity	Electricity	2000	14
Goreangab Water Plant	Water and sewerage	2001	0

Source: PPP knowledge lab (2020)

Considering a funding gap in efforts to finance infrastructure in Namibia, some public institutions have indicated that they cannot borrow due to their weak balance sheets (Niishinda et al., 2014). There is also limited usage of private equity, and other sources of private funding, in the development of infrastructure due to limiting institutional policies (Niishinda et al., 2014). This highlights a need for the government to put in place more frameworks and structures to enable institutional investors to access infrastructure projects such as project finance.

The public sector alone would not finance all identified infrastructure programs because of budget shortages and competing priorities, adding to the need for private sector participation. Other financing sources discussed for Namibia are presented in the literature, including PPPs, privatization, listed development funds, and investment from pension funds. However, the current literature does not identify the use of project finance in Namibia. Believe that project finance can be explored as a funding model, as it deals with large complex projects that require a multi-partnership structure.

## **2.9 PROJECTS FUNDED BY THE PROJECT FINANCE MODEL IN AFRICA**

This section will look into projects in Africa funded through project finance arrangements exacted from *Infrastructure Journal (IJ) Global*, project finance and infrastructure journal.

**Error! Reference source not found.** in Africa Adapted from *Project Finance and Infrastructure Journal*, (2020) review projects funded wholly or partially through the project finance model.

<b>PROJECT</b>	<b>COUNTRY</b>	<b>PURPOSE OF PROJECT FINANCING</b>	<b>PROJECT AMOUNT</b>
Molo graphite mine	Madagascar	This mining project was financed by a project finance loan from Caterpillar Financial and a vendor finance loan by energizer. The purpose of the financing was to fund the operations of the mine.	undisclosed
South Africa's renewable energy sector project.	South Africa	The multiple solar and wind development coincided with the United Nations climate change conference in Durban, intended to develop a 1,416 MW renewable energy to feed in the national power grid.	R 50 billion
Perkoa zinc project.	Burkina Faso	This mining project was funded by Australian listed mining developer Blackthorn Resources, partnering with Glencore Joint venture. The aim was to buy all stakes in the mining project through project finance debt and further expand the development of the mine	undisclosed
Boseto mine.	Botswana	Discovery Metals funded the development of the Boseto silver and copper mine through a project finance loan. The loan was arranged by Standard Chartered, Standard Bank, Credit Suisse, and Caterpillar Financial. The purpose of the financing was to facilitate the completion of the mine.	R 2.52 billion
Omnia Nitric Acid plant.	South Africa	Omnia Nitric issued equity to raise 1 billion, and the remaining required funds were paid through a project finance facility. The purpose of the financing was to increase mine production by 100%.	undisclosed
Bujagali Energy	Uganda	This project was achieved by pure project finance, with financing coming through multilateral support of the World Bank, African Development Bank, Proparco, Multilateral Investment Guarantee Agency, and other financial institutions. This project aimed to develop an electricity generating plant to help Uganda reduce electricity in the country.	R 5.60 billion
Eland Platinum.	South Africa	Nedbank is the lead arranger of this project finance debt. The financing allowed Eland to bring the mine to commercial completion in 2007.	R 588 million

Lumwana copper mine project.	Zambia	One of the largest junior-sponsored project financing groups financed the mine, which worked through multi-banks and development agencies. The project included constructing an opencast mine, a transmission line, a water dam, a manufacturing plant, and a storage facility.	R 14 billion
Kansanshi copper mine.	Zambia	The mine was Zambia's first project finance-funded mine. The mine used non-recourse financing to fund the development of phase one of the project.	R 840 million

Source: IJGlobal, *Project Finance and Infrastructure Journal*, (2020)

**2.10 CONCLUSION**

From the initial literature review, it can be seen that there is a clear indication of the imbalance between the demand and supply of housing in Namibia. There is a continuous increase in the demand for housing in Namibia, particularly in Windhoek, while a simultaneous need to find alternative sources of funding to deal with the supply of housing exists. The current financing option does cater for funding only to a certain degree, as most affordable housing funding comes from the government. However, although funding options are currently available for affordable housing, project finance is not well identified and presently in Namibia, or even in its neighbouring South Africa, which has better developed financial institutions. While elements of project finance are visible in both countries, regulatory frameworks and policies have not yet been established, even though they are leaning toward the project finance arrangements.

Infrastructure plays a pivotal role in both countries, and funding infrastructure development will ensure continuous development. Namibia does not have a well-developed financial instrument for infrastructure, but enacting the existing Public-Private

Partnership, which favours the project finance arrangement, can cater to future infrastructure projects development. Regulatory frameworks regarding the project finance model will need careful research to understand whether there is a need to establish and implement clear guidelines for this funding instrument.

### **3. RESEARCH METHODOLOGY**

This chapter describes the procedures and strategies that the researcher applied while analyzing project finance as a viable solution to affordable housing deficits. It also explains the approach used to carry out the work. The chapter starts with the research method and strategies applied to the research and discusses the employed design and sampling technique. The chapter later looks at the used data collection method and ends with how the data will be analyzed.

#### **3.1 RESEARCH APPROACH**

This research aims to analyze project finance as a funding model for affordable housing in Windhoek. The researcher employs the qualitative approach, "where the searchers attempt to understand behaviour and institutions by getting to know the persons involved and their values, rituals, symbols, beliefs, and emotions" (Frankfort-Nachmias & Nachmias, 2008, p.243). Qualitative research focuses on innovative ways to collect and analyze data in natural settings (Berg, 2009). According to Berg (2009, p. 3), "Qualitative research refers to the meanings, concepts, definitions, characteristics, metaphors, symbols, and descriptions of things. In contrast, quantitative research refers to counts and measures of things". In qualitative analysis thus, the researcher aims to establish an interpretation of the phenomenon under study, focusing as much as possible on the experience of those being studied (Goodman, 2011). Qualitative research reflects a detailed explanation of the subjects' thoughts, viewpoints, and perceptions and interprets the significance of their actions (Denzin, 1970). Due to the research being exploratory in

nature, the qualitative method is the most suitable approach to undertake this research, as the researcher intends to understand the subject topic more in-depth.

The benefits of qualitative research allow individualistic data to be gathered and evaluated at a deeper level. The researcher used an inductive method that is considered acceptable for this research, as the purpose of the discernible "patterns in the data" is to enable the researcher to formulate proposals (Taylor & Bogdan, 1998, p. 7). Inductive inference draws broad generalizations from individual findings where assumptions are derived from the evidence (Bradford, 2017). The study used semi-structured interviews, which resulted in a more flexible research structure that allowed deeper interpretation.

### **3.2 RESEARCH DESIGN**

This research is an exploratory study carried out when a topic needs to be understood in-depth, and little or no research on the subject has been done before. The main goal of the exploratory study is to explore the problem and not necessarily to derive a conclusion from the study. Exploratory research is thus performed to assess the problem's existence and is not meant to provide definitive evidence but rather to help us better understand the problem. When undertaking exploratory analysis, the researcher should shift direction due to the disclosure of new evidence and new observations (Saunders et al., 1996).

This research used a semi-structured interview intended to get participants to answer the research questions. The interviews were flexible and open-minded and gave the interviewer and interviewee more options to explore and discuss the topic. The semi-structured interviews focused on project finance in Namibia and the structure of the

project finance model, and its successes. The interview later looked into the usage of project finance in the affordable housing market. It also looks into the legal frameworks necessary for the model to operate and the possible challenges and opportunities the model could face. Finally, using the thematic analytical tool, similar patterns from the discussions were collated, and each discussion point was concluded with interpretation. The researchers aimed to better interpret the phenomena in a certain sense rather than generalize the phenomenon based on the general public's perception (Creswell, 2007).

### **3.3 SAMPLING**

A sample is a subset of a population under study that makes research more accurate and economical, and sampling aims to learn about the entire population (Wolf et al., 2016). This research was carried out using non-probability sampling, described as a sampling strategy in which the researcher selects samples based on the researcher's judgment rather than a random collection. The non-probability sampling method heavily relies on the know-how of the researchers, and it is carried out by observation. The specific type of non-probability sampling used in this research is judgment or purposive sampling.

Purposeful sampling is a strategy commonly used in qualitative analysis to detect and collect information-rich cases for the most efficient use of available resources (Patton, 2002). As purposeful sampling is widely used in qualitative research to identify and pick knowledge-rich circumstances surrounding the phenomenon of interest, it is used extensively in qualitative analysis (Palinkas et al., 2015). The key aim of purposive sampling is to concentrate on certain features of an interesting population to allow the

researcher to address study issues (Laerd Dissertation, 2012). This includes finding and choosing individuals or groups of individuals who are, in particular, competent or familiar with the phenomenon in concern (Creswell & Clark, 2011). In addition to knowledge and experience, Bernard (2020) noted the importance of the availability and readiness of participants to participate and their ability to articulate, expressively, and reflectively convey their perceptions and opinions.

The research sample was conducted within the disciplines of project finance, infrastructure finance, and housing. Participants in the research come from various industrial forums and have knowledge and experience in infrastructure and housing finance. These industries include local banks and asset management companies with the project and property finance departments and government institutions.

**Error! Reference source not found..** The table presents the participants in the interviews, the organization or institution they represent, and their role in that organization. The number of participants interviewed depended on the interviewee's willingness to participate. Contact with the participant was made through referrers and social media platforms such as LinkedIn.

All participants signed a consent letter before partaking in this research. The data from the respondents achieved a relatively good saturation of theoretical data, with respondents generally having an analogous understanding of project finance and housing.

<b>RESPONDENT</b>	<b>INSTITUTION</b>	<b>ROLE</b>
Respondent 1	Namforce Life Insurance	Is a chief financial and operational officer at Namforce Life Insurance, a chartered accountant by profession. The respondent heads the company's financial and operational matters that provide financial services in life insurance, disability insurance, saving and investments, and fund insurance.
Respondent 2	Capricorn Group	Works with specialized finance and corporate development at the Capricorn group. The respondent has direct working experience with the project finance model in the independent power-producing initiative.
Respondent 3	Ministry of Finance	Is the chief economist in the Public-Private Partnership Directorate under the Ministry of Finance. The respondent has intensive experience within the public sector, with a working background in project and infrastructure finance, public policy and management, the public funding model, and national development budgets.
Respondent 4	Capricorn Asset Management	Is the head of alternative investments at Capricorn Asset Management and has working experience in financial analysis and modelling.
Respondent 5	Rand Merchant Bank Namibia	Is an investment banker at Rand Merchant Bank, where he focuses on corporate and infrastructure finance dealing in both the private and public sector.
Respondent 6	Capricorn Group	Is a professional Chartered accountant who works as an investment banking analyst for Capricorn capital, focusing on specialized finance and corporate development.
Respondent 7	Select Africa Limited, African Alliance	Is a chartered accountant by profession, focusing on corporate finance at Select Africa Limited, which deals with housing finance and fundraising in debt and equity sectors.

List of respondents to finance and housing interviews.

### **3.4 DATA COLLECTION**

Qualitative research data collection methods include field research and historical-comparative research (Neuman, 2012), which use observations, visual analysis, and interviews of groups and individuals (Silverman, 2013). The data collection process is closely related to sampling and is better regarded as complimentary – thus, data is gathered directly from the sample population identified and chosen (Lopez & Whitehead, 2013).

The data collection will be direct for this research, meaning data from recordable spoken or written words, observation of body language, interaction, or observed action (Lopez & Whitehead, 2013). Interviews, observations, journaling, think-aloud sessions, and open-ended questionnaires are the methods of indirect data collection (Lopez & Whitehead, 2013). This research will mainly acquire data through interpersonal contact with participants, as it's the most common method used for collecting qualitative data (Borbasi et al., 2005). This interaction can be human to human or human responses to inanimate interviewers (Lopez & Whitehead, 2013).

The structure of the interviews will be semi-structured, meaning that the interviewer will provide a set of questions structured around the objectives of the research. The semi-structured interviews will also allow the interviewer the flexibility and freedom to ask questions in any order, seek more clarification, or require respondents to provide more elaboration on earlier responses. The interviews took place between October and November in 2020; they were mainly face-to-face or virtual. The overall average interview took about 45 minutes, with audio recording the main form of capturing the interview data; the data was later transcribed into word format for thematic analysis.

### **3.5 DATA ANALYSIS**

Data processing is the method of gathering vast quantities of data to make sense of it (Kawulich, 2004). Patton (1987) indicated that three stages arise during the analysis: data is structured, information is minimized by summary and categorization, and data trends and themes are defined and related. Neuman (2012) stated that, in all data analysis, one carefully examines empirical information to gain empirical evidence to anchor general statements about the social world. In most qualitative analyses, data are retained in their textual form and indexed to create methodological categories and theoretical explanations. The data are preserved in their textual form and "indexed" to generate or develop analytical types and theoretical descriptions (Pope et al., 2000).

According to Maxwell & Chmiel (2014), qualitative data analysis includes the coding categories created by the researcher and the identified different segments of data to which analytic procedures are applied. All the relevant data of each type are identified and examined using the constant comparison process, which checks or compares each item with the rest of the data to establish the different analytical categories (Pope et al., 2000). For this to happen, it requires a coherent and systematic approach, and the point of the process is to be inclusive (Pope et al., 2000).

Qualitative researchers need to show that data analysis was carried out in a precise, consistent, and exhaustive manner by documenting, systematizing, and revealing the techniques of research in sufficient detail to allow the reader to evaluate whether the process is credible (Nowell et al., 2017). The argument's coherence will determine the research's analytical credibility. (Nowell et al., 2017). How the researcher uses the facts to support the significant arguments, working toward a persuasive explanation, will

determine the process's credibility (Starks & Trinidad, 2007). Thus, researchers have advanced tools at their disposal for performing rigorous and meaningful analysis.

This research uses thematic analysis, a tool used to analyse qualitative data to clarify and represent people's opinions in a text collection (Denzin & Lincoln, 2005). This methodology analyses the presented data to distinguish general patterns, issues, and persistent themes in the data set. Thematic analysis is a perfect way for a researcher to discover the attitudes, emotions, opinions, and significance of data of individuals from the data pool.

To recognize common trends, topics, and themes consistent throughout the data collection, this approach analyses the data presented by codifying the similarities into themes. Similar to the data analysis method for the creation of the grounded theory, the thematic analysis phases include data knowledge; the generation of initial codes; the quest for themes; the review of themes; and finally, the definition of the data line-by-line open (initial) coding of the qualitative answers to the semi-structured interview (Charmaz, 2006).

**Error! Reference source not found.** adapted from Braun et al. (2017) is a six-phase analysis process is outlined in Table below. While these stages are linear, analysis is usually a recursive process, with back-and-forth movement between various phases.

STAGE	ACTION
1. Data familiarisation.	The first stage involves reading the interview data absorbed in its material until one is deeply familiar with it.
2. Coding.	The second stage includes generating concise labels (codes) that classify significant data characteristics that may be important in response to the research query. It includes coding the entire dataset and, after that, gathering all the codes and all related data extracts together for later stages of the study.
3. Initial themes created.	The third stage involves analyzing codes and data collected to recognize significant broader meaning trends. It then requires gathering data specific to each theme of the candidate to interact with the details and review the feasibility of each of the candidate's pieces.
4. Reviewing themes.	The fourth stage includes reviewing the candidate topics against the dataset to narrate the data and address the study queries plausibly. Themes are usually optimized in this process, which often includes separating, mixing, or discarding them. Themes are characterized in the thematic analysis approach as patterns of ordinary meaning underpinned by a core concept or idea.
5. Defining and naming themes.	The fifth stage includes the production of a comprehensive review of each theme, the development of the scope and emphasis of each theme, and the determination of each 'plot.' For each style, it often requires settling on an informative name.
6. Writing up.	This final stage includes weaving the analytical narrative and data extracts together and interpreting the analysis in relation to current literature.

Source: Braun et al. (2017).

### **3.6 CONCLUSION**

The researcher used the qualitative approach to conduct the research. The research design was carried out in an exploratory nature, where the researcher intended to understand the topic in depth. The study was conducted through semi-structured interviews with professionals working experience with the model to solve affordable housing deficits. The sample of the research has seven respondents from the financing and housing segments of the economy. The research analyses of the data used the thematic analysis approach, where the data was coded into themes.

## 4.0 RESEARCH ANALYSIS AND DISCUSSION

This chapter is divided into three sections: coded data presentation, the five main themes resulting from thematic analysis, and the research findings. The first section presents the researcher's data into different themes and sub-themes to find similarities and links. The second section discusses the five main themes and sub-themes from the coded data. The third section discusses the finding of the research to answer the research's three main objectives.

### 4.1 SUMMARY OF THE DISCUSSIONS

**Error! Reference source not found.** of the main themes identified in the research, with the findings of the main theme detailed in the main finding in the response box.

TOPIC	RESPONSE
Project finance model as a viable tool for funding affordable housing development.	Yes, project finance is a viable tool for affordable housing developments. However, it greatly depends on how the project finance model is structured and the predictability of the project cash flow.
Deciding factors on whether to use project finance in affordable housing developments.	A predictable and strong stream of cash flow from the project. A healthy competition between equity and debt financiers to reduce interest rates. End-user affordability and access to finance. Good governance. An attractive market.
Opportunities for project	Companies with small balance sheets can take on large projects.

<p>finance models.</p>	<p>Opportunities for partnership at a local and international level.</p> <p>Shared risk and exposure are limited to the project.</p> <p>Multi-source funding options.</p>
<p>Challenges of the project finance models.</p>	<p>Complex to put together.</p> <p>Expensive.</p> <p>Lengthier than traditional funding models.</p>
<p>The regulatory framework for project finance models.</p>	<p>No specific regulatory frameworks exist in Namibia for project finance models. However, the Bank of Namibia regulates the risk and security banks can take on projects, while NAMFISA regulates financial services that fund housing and infrastructure sectors. The Namibian Public Funding Act 31 of 1991 regulates how public funds are invested and managed.</p> <p>Regulations are not encouraged, as they will make the process more rigid.</p>
<p>Affordable housing issues.</p>	<p>Affordability on the part of end-users.</p> <p>The availability of land.</p> <p>The high cost of land development.</p> <p>High-profit margins by property developers.</p> <p>Enhancing the efficiency of construction to achieve more affordable prices.</p>
<p>Affordable Housing Solutions.</p>	<p>Better utilization of land.</p> <p>Alternative building design and materials.</p> <p>Clear definition of the price range for affordable housing.</p>

## 4.2 PRESENTATION OF FINDINGS

After interviewing seven respondents from various institutions, the semi-structured interviews were analysed using the thematic approach with NVivo 12. The results of the coding were organized under five main themes.

**Error! Reference source not found.** represent the word frequency queries that list the most common terms or ideas in the data sources. Word frequency queries define potential themes in the early stages of research to review the most widely used vocabulary in a given population.



Figure 4.1 Indicates the word frequency from the source data

**Error! Reference source not found.** as a result of analyzing the dataset to get the different themes,

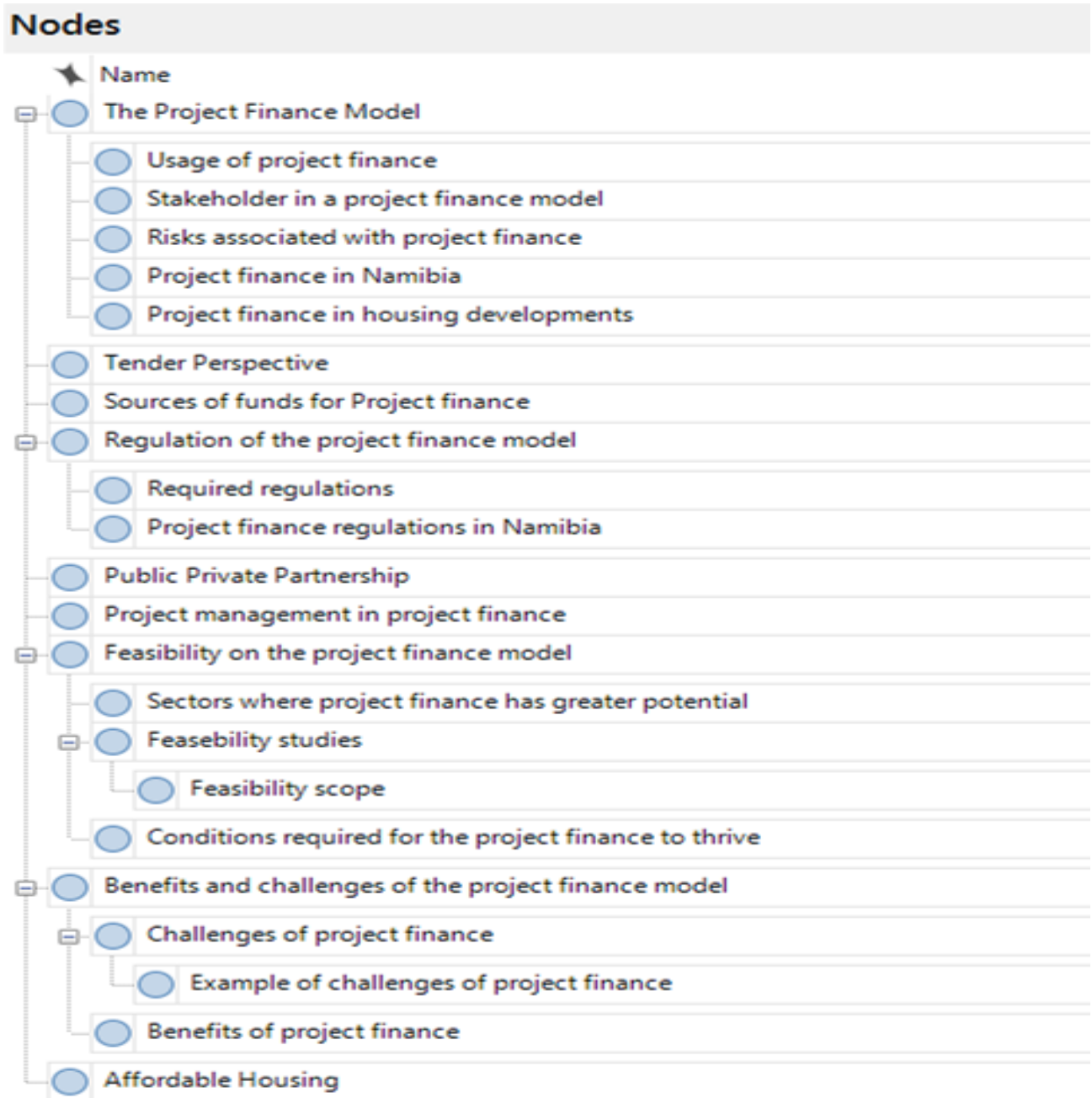


Figure 4.2 indicates the coded structure used in NVivo12.

Table 4.2 present the five main themes were established as a result of the thematic analysis of the data.

THEME	SUB-THEMES
The Project finance Model.	Project finance in Namibia. The use of project finance. Project finance in housing development. Stakeholders in a project finance model. Risk association with project finance.
Feasibility studies on the project finance model in Namibia.	Feasibility studies. Conditions required for the project finance model to thrive. Sectors of the economy where project finance has more significant potential.
Benefits and challenges of the project finance model.	Benefits of project finance. Challenges of project finance. An example of the challenges of project finance.
Regulation of the project model in Namibia.	Status of project finance regulations in Namibia/ Mandatory regulations on project finance in Namibia.
Affordable housing.	Affordability, guarantee, building scope.

Table 4.2 Framework of the thematic analysis of the interview dataset.

### **4.3 THEME 1: THE PROJECT FINANCE MODEL IN NAMIBIA**

The first theme is centred on the state of the project finance model in Namibia. Respondents were required to provide their knowledge and experience working with the project finance model within the Namibian context.

#### **PROJECT FINANCE IN NAMIBIA**

All respondents have a general understanding of project finance and have worked with the instrument in some context of their jobs. The keywords extracted from the respondents revolve around predictable cash flow, off-balance sheet, the structure of choice for infrastructure projects, non-recourse and long-term agreements.

*Respondent 4: Project finance is an old funding model which predates corporate finance. The project finance model was used to fund projects on a non-recourse basis, as balance sheets did not exist at the time.*

*Respondent 5: The funding model is beneficial when it would be impossible for an individual participant to take on the infrastructure project because it is too large to put onto a particular company's balance sheet. It instead allows the participants to share the risks associated with undertaken projects.*

*Respondent 2: The model has been used in many sectors as an economic driver and financing mechanism, where the collateral is minimum if it exists at all. This is evident in the infrastructure sector, where major infrastructure projects have used the model to fund projects.*

Deduce from the responses that the model has become a financial structure of choice for infrastructure projects that have entered into long-term offtake agreements with well-established organizations in the past few decades. In the Namibian context, the project finance model is relatively new, as its entire arrangement is yet to be used in various sectors.

## **THE USE OF PROJECT FINANCE IN NAMIBIA**

Respondents gave examples of instances where they have seen the project finance model being used within the Namibian context.

1. The project finance model is currently mainly used by independent electric power producers, who develop and manage renewable energy power plants as an initiative of the Namibia National Independent Power Producers.

*Respondent 2 stated that this initiative is intended to complement the electricity generation capacity of Nampower, the national power utility company of Namibia.*

As part of this initiative, long-term agreements are put in place for the independent power producers to sell power to Nampower at an agreed price. These projects employ the project finance structure through debt and equity financing.

2. The second known usage of the project finance model in Namibia is the Windhoek wastewater treatment plant, developed under a public-private partnership structure.

*Respondent 3 explained that this arrangement included creating a special purpose vehicle between the City of Windhoek and the Veolia group that aimed to develop, operate and manage the operation. The wastewater treatment plant currently produces about*

*20% of the Windhoek water needs, and, through an SPV, stakeholders benefit in terms of revenue and supply of potable water to the City of Windhoek community.*

3. The third example of using the project finance model arrangement is the Emona student accommodation facility. This project was also structured with a public-private partnership between the University of Namibia and a local company, Hanganeni Investments.

*Respondent 3 explained that the university provides the land for student accommodation as part of the arrangement. At the same time, the private company developed, funded, and manages the accommodation facility through a long-term lease, during which the project is expected to generate the projected returns on investment.*

## **PROJECT FINANCE IN HOUSING DEVELOPMENT**

Before using the project finance model in housing development, the researcher inquired about funding models that respondents have used to provide affordable housing in Windhoek. The respondents from the private sector stated that they have worked with direct debt financing, development finance, and end-user finance, mainly from financial institutions and, in some instances, investment funds.

Respondents from the public sector stated that they have worked with the public funding model through the State Finance Act 31 of 1991, which allocates funds to public entities, such as the National Housing Enterprises (NHE), to develop affordable housing. These funds come from the development budget and the private sector funding model, which assist public entities in exploring potential projects. These entities have also utilized personal sector finance in debt financing from commercial financial institutions.

*Respondent 3 worked with the private sector funding model, where they help public entities explore potential projects that can utilize private sector finance. This private-sector funding mainly comes from banks via debt and equity finance*

Regarding the application of the project finance model in the development of affordable housing, all respondents stated that they are not aware of a pure project finance structure that caters explicitly to affordable housing developments. They are, however, aware of other sectors where the project finance structure was used.

*Respondent 4 stated that he has not seen the traditional project finance being implemented in housing developments.*

The respondents concluded that the project finance model could work in funding affordable housing developments; however, its success will greatly depend on its structure and the requirements, such as guaranteed cash flow, risk allocation, and legal and technical aspects, are met.

*Respondent 7 stated that the project funding model could be used in housing development to draw private sector interest in debt and equity-based on how it is arranged.*

However, one of the long-term concerns would be insolvency should the intended users of the project default on the payment process if the intended target's affordability level is not met.

## **STAKEHOLDERS IN A PROJECT FINANCE MODEL FOR AFFORDABLE HOUSING**

An affordable housing project finance model is no different from the traditional project finance model. Though the arrangement would be more specific to housing development, the stakeholders are primarily the same, with the project sponsor, government entities, financiers, the suppliers of service, and the consumers making up the core stakeholders.

*The project consists of stakeholders in a typical project finance model, with the SPV being the principal component of the structure, explained Respondent 2.*

The project sponsor's responsibility is to manage the overall project from start to finish. The project sponsor also gathers all the other stakeholders and coordinates and facilitates the project until its successful completion stage.

The financiers provide project funds via debt or equity financing. The financing can come from a single entity, or group, of financial institutions who have a stake in the SPV once a satisfactory review of the deposit guarantee and projected cash flow had been undertaken.

The government or government entity's primary role is to provide incentives for un-serviced, lower-cost serviced land, or provide monetary subsidies and develop and implement regulations regarding housing and funding instruments.

The service providers provide all necessary services, from the technical aspects to supply and development aspects of the housing development.

The consumers are the primary beneficiary of the project finance model, as they are the end-users of the developed product. The concepts behind the project finance model are the distribution of risk, a predicted cash flow, and a multi-source of finance.

#### **4.4 THEME 2: FEASIBILITY STUDIES ON THE PROJECT FINANCE MODEL IN NAMIBIA**

##### **FEASIBILITY STUDIES**

Respondents from the public sector revealed that there are feasibility studies currently underway in the affordable housing market.

*Respondent 3 stated that they are currently conducting a feasibility study of an affordable housing project using the PPP framework. That project is envisioned to be implemented in Windhoek, Ondangwa, and Walvis Bay.*

*Respondent 5 detailed that quite a few feasibility studies are being conducted by the World Bank and the African Development Bank, focusing on the regulatory environment, bankability, and sectors of the economy with the best returns.*

*Respondent 2 added that he is aware that entities like IHS, Africa Growth Capital have conducted feasibility studies on affordable housing in Namibia.*

The feasibility studies investigate the requirements of the housing projects from a technical and end-user perspective while looking at their affordability levels, expected investments, project returns, and how project finance can be applied.

## CONDITIONS REQUIRED FOR THE PROJECT FINANCE MODEL TO THRIVE

For project finance to thrive in the Namibian environment, the respondents stated that the project finance model requires several things to be in place. First, there should be a predictable and robust stream of cash flow coming from the project, making it more attractive for investors and lenders to invest in the project.

*Respondent 1 detailed that one of the conditions is a predictable stream or flow of revenue.*

There should be a good mix of financiers from both the debt and equity sectors. This creates healthy competition for both parties and keeps the financing costs at a reasonable level.

*Respondent 7 stated that an open market, in general, is suitable for the model.*

Another factor the respondents highlighted is that investors have to find the market attractive for them to invest and retain their investment. If free and open markets are attractive to investors, they are conducive for businesses.

Affordability from end-users perspective is also essential, as cash flow is an essential deciding factor in a project finance model, stated Respondent 6.

*Respondent 3 explained that the project finance arrangement might need to be supported by a public entity or government because of the affordability concern. This is because the income levels of the end-user may not always be sufficient to cover the cost of investment. This is why government sometimes has to subsidize the project; to make the project finance structure more viable.*

*Respondent 1 stated that one actual condition in preparation of projects, project management processes are implemented to mitigate and properly allocate risk associate with project finance.*

Project management is another essential element in the success of the project finance model. Financiers and other stakeholders typically assess whether the project team has sufficient experience and knowledge about the undertaken project.

#### **4.5 THEME 3: BENEFITS AND CHALLENGES OF THE PROJECT FINANCE MODEL**

##### **BENEFITS OF PROJECT FINANCE**

A majority of the respondents agreed that the main benefit of project finance is its ability to develop large projects with a small balance sheet, as a firm does not need a large sum of equity to take on these projects.

*The big thing at the end of the day is to build large projects using more miniature balance sheets, stated Respondent 5.*

The project finance model allows the project implementers to structure a project with a positive commercial outcome, which is commercially viable to all stakeholders. The risk associated with the project is shared among the SPV stakeholders, and the risk exposure is limited to the project within the project finance model.

*Respondent 5 stated that the project finance model advocates for both local and international partnerships, depending on the complexity and funding requirements, as partnerships strengthen the positive outcome of the project. The characteristics of the*

*project finance model also allow project sponsors to bring forward well-prepared projects, as there are much complexity and expertise required on said projects. Due to the dependence on the future cash flow, Respondent 3 pointed out that the model allows public entities and the government to free up some financial sources and enable private investors to share projects' load and economic burden.*

On the development side, the project finance model does not put pressure on the company's balance sheet; instead, it allows the developer to run multiple projects concurrently. *Simultaneously, the project finance model gives the lender a clear sense of where the cash flow will come from, explained Respondent 2.*

## **CHALLENGES OF PROJECT FINANCE MODEL**

Most respondents agreed that the project finance model is complex to put together, as it requires a great deal of experience and technical knowledge in different model disciplines.

*The main challenge will be putting it together; the various stakeholders in the structure make it very complicated and legally intensive, cited Respondent 5.*

The model is also associated with many risks, with cashflow security being one of the leading project risks due to the high possibility of default.

*Respondent 7 gave insolvency and the financial strength of the utility company that buys the power as examples of long-term risk associated with an energy project.*

If the government does not take on the risk, the risk falls on the investor and funder, making it less attractive to take on projects that have no guarantees from the hosting government or organization. Respondents also added that the model is associated with

high transaction costs, especially concerning repayment interests. The model is also lengthier, as it takes more time to put together than traditional models.

In conclusion, the model makes it less suitable for affordable housing if the project is not well put together, the risk considerations are not well sorted out among stakeholders, cash flow projections are not identified, and the local economy has a regression outlook.

#### **4.6 THEME 4: REGULATORY FRAMEWORKS FOR THE PROJECT FINANCE MODEL**

##### **STATUS OF PROJECT FINANCE REGULATIONS IN NAMIBIA**

All respondents indicated that they are not aware of any currently employed regulatory frameworks governing Namibia funding models. However, they mentioned that the central bank, Bank of Namibia, governs commercial banks, the primary funding providers.

*Respondent 1 stated that, as far as he knows, there aren't regulatory frameworks that govern funding models.*

*Respondent 5 explained that he is unaware of a specific framework regulating project finance, but he indicated that banking and financial regulations would suit financing projects.*

The Bank of Namibia regulates how much risk they need to take and how much capital they need to put away as security. The Namibia Financial Institutions Supervisory Authority (NAMFISA), on the other hand, regulates and supervises financial institutions

and financial services, such as insurance companies, assets management firms, pension funds, and other financial entities.

*Respondent 2 stated that there are regulations on how public entities raise money, which NAMFISA regulates.*

Respondents also cited the State Finance Act 31 of 1991, which regulates how public finance is managed, including funds available for housing and other infrastructure developments.

Some respondents believed that affordable housing projects might be more suitable for PPP-type frameworks, which, in Namibia, are regulated by the Public-Private Partnership Act 4 of 2017.

The PPP act governs how PPP makes use of project finance. However, the PPP framework does not regulate the project finance model; it regulates how PPP should be done.

*PPP and project finance complement each other, cited Respondent 3.*

## **REGULATIONS REQUIRED FOR PROJECT FINANCE IN NAMIBIA**

Respondents also noted that the project finance model is a global financing structure and that there are international standards that any country can follow. Most respondents indicated no need for a regulatory framework that explicitly regulates the project finance model or other funding models, as funding models are ever-evolving.

Thus, putting in place policies and regulations will strain investments and would be unattractive in the long run, as policies and regulations are not easily amended. Promoters of the project finance model would like a free, open market rather than more regulations.

*Respondent 6 cited that he could not think of anything specific that would need to be put in place, apart from where the government is involved.*

*Respondent 1 stated that stakeholders would need to increase the threshold to make money available for viable local projects and that regulations will make it more difficult for the model to succeed.*

*Having policies that regulate project finance might make it challenging to implement due to the changing nature of these models, cited Respondent 5.*

*Respondent 3 stated that regulations might just frustrate the whole project finance process.*

*Respondent 5 is satisfied with the current status quo because project finance is just a financing arrangement and can take different forms; it changes through time.*

In terms of frameworks that need to be in place for the project finance model to thrive, it is essential to place risk management on the stakeholder, who is most suitable to take on the risk. In most cases, the stakeholder with the capacity to shoulder risk would be the government. This would also make it easier for funders and the project developer to structure the project finance model.

#### 4.7 THEME 5: AFFORDABLE HOUSING IN WINDHOEK

Throughout the conversations with the respondents, they noted that the challenges surrounding housing in Windhoek range from affordability on the end-user segment to the availability of land, the high cost of land development, and high-profit margins by property developers.

*Respondent 6 stated that your value is higher when building in urban centres, especially when making in Namibia's capital city. Therefore, keeping the base cost of your housing development relatively low while having this high land value is often difficult.*

Another issue with affordable housing in Windhoek is that developers tend to target high-profit margins, which increases house prices. Respondent 2 stated that land allocated for affordable housing makes house prices relatively high because developers make up to 70% profit margins due to the lack of affordable housing price limits.

Respondent 1 stated that Windhoek continues to have a culture of building single-dwelling houses in almost all housing classes. Single-dwelling houses are linked to the high land development cost, as a multi-story apartment building reduces the land servicing cost and is a more efficient use of land.

*Respondent 7 thinks that apartment blocks are the future of housing in Africa. However, changing the mindset of people might be the biggest hurdle to overcome.*

A change in building materials can also help decrease building costs and allow project sponsors to meet the target price for an affordable house. However, Respondent 7 states that one must factor in building quality structures and not just using shady architectural plans or materials to reduce cost.

End-users in the blue-collar class do not qualify for housing loans from lenders, as they lack collateral and are, therefore, the hardest hit in terms of being able to afford a home.

Respondent 4 stated that the difficulty with low-cost housing is that it's challenging to commit an individual buyer without a deposit. Enforceability on that contract becomes very difficult, as they already don't have access to cash or a deposit.

## **4.8 DISCUSSION OF FINDINGS**

### **THEME 1: THE PROJECT FINANCE MODEL IN NAMIBIA**

The first theme explored the state of the project finance model in Namibia, and it looked to what extent it has been used as a funding instrument in affordable housing projects. This theme confirms the respondents' in-depth understanding of project finance, confirming its characteristics and arrangements primarily used in long-term infrastructure projects, where undertaking entities tend to have an inadequate balance sheet to observe the undertaking projects. The theme also identified that project finance viability in funding affordable housing greatly depends on a predictable cash flow and its structure. The theme similarly confirms with the literature that project finance in Namibia has been mainly used in the energy generation sector, with a water treatment plant project also assumed to have utilized some model characteristics. The theme revealed a student accommodation facility between the University of Namibia and a private developer that has also used the model characteristics under the PPP framework.

On using the model in housing development, the theme confirms there is no current data in that sector. The available literature on housing projects has mainly utilized traditional

debt finance, development financing, and end-user financing instruments. The theme listed stakeholder of project finance for affordable housing development would be centred around a special purpose vehicle, with government entities, host companies, financiers, contractors, and suppliers forming part of the model structure.

## **THEME 2: FEASIBILITY STUDIES ON THE PROJECT FINANCE MODEL IN NAMIBIA**

The second theme analysed the feasibility studies conducted on project finance in Namibia. With a closer look into the required conditions for a project finance model to be implemented successfully. The theme concluded that feasibility studies in project finance Namibia are inadequate, with feasibilities performed on the model more focused on the PPP framework. At a global level, feasibility studies have been widely conducted by the world bank, the Africa development bank, and institutions that provide project finance. This corroborates the literature that the project finance model has had limited use in Namibia, with the available information more focused on the PPP framework.

The second section of the theme explored the conditions required for the project finance model to thrive. Firstly the theme confirms a predictable and strong cash flow stream from the project, the most critical factor. Secondly, there should be healthy competition between equity and debt financiers, as this would reduce interest rates and promote more participation from both sides. Thirdly, the host country needs to have good governance policies, in addition to an attractive and stable market. All conditions are available for the project finance model to take effect, as the Namibia market is fairly stable, the country has a good legal framework, and the government and financing entities come into subsidised programs for the qualifying groups.

### **THEME 3: BENEFITS AND CHALLENGES OF THE PROJECT FINANCE MODEL**

This theme looked into the benefits and challenges of the project finance model. The themes identified the balance sheet elements of the project finance structure as the most attractive component for companies to borrow on a non-recourse basis; this is at the centre of the project finance literature. The model offers local and international partnerships. It promotes risk-averse elements by spreading risk among the stakeholders. The theme identified that the model users are exposed to multi-sources of funding options; this is made possible by the attractive cash flow predictions carried out at the early stage of the project finance arrangement.

The theme revealed challenges of the project finance model, stating that it has elements of complexity to set up, as they require many aspects of the structure models to be in place for complete functionality. The model is also expensive, as it has a higher interest rate due to the high-risk elements on the model and the fact that the project guarantee relies on the project itself.

### **THEME 4: REGULATORY FRAMEWORKS FOR THE PROJECT FINANCE MODEL**

The fourth theme discussed regulatory frameworks in the context of the project finance model in Namibia. The theme confirmed with the literature that no regulations or policies currently exist in Namibia. The theme revealed that regulations on funding models are not recommendable, as they will only further limit the implementation of the funding models. The theme also indicates that funding models are continuously evolving and mutating into new forms, and keeping them open-ended will offer more options and a new direction for

the model. The theme concludes that regulatory bodies, particularly NAMFISA, the Bank of Namibia, and the government, need to exhibit funding models to expose and educate the larger public instead of regulating them.

## **THEME 5: AFFORDABLE HOUSING IN WINDHOEK**

Theme five examined affordable housing in the context of Windhoek, Literature on issues and solutions of affordable housing in Namibia has been widely explored. The main identified problem being the disparity in the demand and supply elements. The theme revealed that affordability on the part of end-users is another major challenging factor, as implementing affordable housing projects requires a predictable cash flow for the model to work. The availability of vacant land is another factor, as land is associated with high developmental costs and property developers are profit motivated, contributing to the already high developmental costs. In many cases, the social issues of affordable housing are not taken into consideration; these also confirm with the current literature. The theme identified better land utilization, alternative building designs, and alternative materials and setting up a price cap for affordable house programs as solutions to resolve the housing crisis.

### **4.9 SUMMARY**

The research findings confirm that the project finance model can be implemented as a funding instrument for affordable housing development, considering that specific arrangements are made to fit affordable development projects and have predictable cash flow. Project finance offers many opportunities to its users, including non-recourse loans,

the project guarantees are not based on the company's balance sheet, and the risk factors despaired among the stakeholders. Though, the research also concluded that project finance is expensive and complex to put together. The study additionally indicated that at this point, there are no regulations on the model, and the rules are not encouraged as they will only put restrictions on the instrument. The further study indicates that there are shreds of evidence of the model is used in Namibia, mainly in the energy generation sector. The research also revealed that funding for affordable housing had been left to traditional institutions and instruments. Thus, alternative instruments would be encouraged as they would offer a different direction

## **5. RESEARCH CONCLUSIONS AND RECOMMENDATIONS**

This chapter concludes by reviewing the research objectives, the research conclusions, and, finally, the recommendations and potential future works on the topic.

### **5.1 REVIEW OF RESEARCH OBJECTIVES**

The research intended to ascertain the use of the project finance model in an affordable housing development project in Namibia's capital, Windhoek. The study additionally intended to establish the optimum environment needed for project finance to thrive in Windhoek's economy and housing sector. And lastly, the study aimed to assess the opportunities and challenges that the project finance model is likely to encounter given the current business climate in Namibia.

On the first objective, the research concludes that the project finance model is a viable funding instrument for affordable housing development in Windhoek, provided the projects have a predictable and reliable cash flow. The model for housing development will remain similar to the traditional project finance structure, as the core structure of the project finance is universal.

The research found that the project finance model has had little exposure in the Namibian market, with available information mainly centred around independent power production projects and anticipated to continue funding projects of similar nature. Project finance positively affects the economy as it strengthens financial participation, employment, and infrastructure development. Thus, the model offers numerous opportunities in Namibia, mainly in the mining and energy sectors. With variously identified initiatives such as the

Namibian Pension Fund Act 24 of 1956, mandates a percentage of pension fund investments to be invested in local markets, the Namibia National Independent Power Producers initiative and Public-Private Partnership Act 4 of 2017 to utilised elements of the models under (BOOT) Build-own-operate-transfer or (BOT) Build-operate-transfer.

The second objective concludes that new regulations are not required for the model to exist; all respondents believe that current regulations governing financial institutions and banks are sufficient. Further regulations will limit the funding model flexibility, making it less user-friendly and less attractive to investors, as the model is known to take many forms depending on the sector is used. The research found that, depending on where the funding is coming from, regulations of the model in Namibia will fall under those regulated by the Bank of Namibia, which holds overall activities of financial banks, NAMFISA, which regulates and supervises financial institutions and services, and the Public State Finance Act 31 of 1991, which governs how public finances are managed. With financial banking regulations becoming stricter, funding models in Namibia in the future will start to lean more toward financial services and asset management firms, as these financial institutions are pro-investment and less regulated in terms of the type of financial arrangements or investments they can take on.

The third objective revealed that the model is ideal for companies with small balance sheets to undertake large projects. The model encourages local participation in large, complex projects and encourages investors to offer equity and debt financing to projects, provided the project has a positive cash flow. The project risks are shared among stakeholders, making the model more risk-averse.

The model has revealed that the usage of the project finance model is associated with higher interest rates than traditional funding models, and it is more complex to put together than other models. The study further established that it would be challenging to identify projects with predictable project cash flow in the affordable housing space, as these targeted end-users are associated with poor credit ratings and inherently have a higher risk of default.

## **5.2 CONCLUSIONS**

The project finance model has been used successfully to fund projects in different industries globally, with billions of Rands in play every year. The project finance model is a much-needed funding instrument for developing countries, used as a tool to realize their complex and large projects and also as an economic stimulus. The model caters to projects that are expected to yield positive cash flow. This research has shown that the project finance model is a viable funding arrangement for developing affordable housing in Namibia's capital, Windhoek. This viability will significantly depend on the predictability of the project cash flow.

Using the project finance model for project funding for affordable housing in Namibia, particularly in Windhoek, is plausible due to the ongoing crises and with the evidence that project finance has, to date, been successfully used in the energy sector of Namibia economy. However, it has to be stated that the model is more expensive than traditional methods and putting it together would be complex. Furthermore, there are no direct regulatory policies for the model in Namibia; stakeholders involved in arranging project finance are more likely to structure the model for their specific project and per global

standards. The successful implementation of the project finance model in Windhoek will, however, be dependent on three factors, namely:

- 1) availability of land for proposed developments.
- 2) affordability levels of consumers (home buyers).
- 3) the projected cash flow of affordable housing developments.

The research supports the proposition that project finance offers an alternative funding option in developing affordable housing, as current funding options are limited to traditional funding methods. Project finance, as an alternative, will widen the funding options landscape for affordable housing.

### **5.3 RECOMMENDATIONS AND FUTURE WORK**

This research focused on the project finance model in the context of affordable housing development in Windhoek. It reviewed the project finance structure, the benefits and challenges, the requisite regulatory frameworks, and the current status of affordable housing in Windhoek. It was thus concluded that the project finance model is a practical funding instrument for affordable housing as long as the requisite conditions are in place.

Future research on project finance needs to explore other sectors of the economy to determine where the model can have the best yield and utilization outside of housing development. Additionally, there is a need to explore alternative funding solutions that could help curb the backlog of housing in Namibia, particularly in Windhoek, focusing on solutions that offer cheap financing which involves both the public and private sectors.

Such funding models should be explored with a particular focus on lending for low-income housing consumers, regulating pre-qualifying criteria for low-income earners, and controlling developers' profit margins.

Moreover, the government and stakeholders in the affordable housing space need to set up guidelines on funding models suitable for housing development as this area remains largely unexplored. This will significantly benefit future users of funding models in knowing the practical viability and associated challenges.

## REFERENCE

- AHMED, P. A. 1999. Project Finance in Developing Countries / [principal authors, Priscilla Anita Ahmed and Xinghai Fang, Washington, D.C, International Finance Corp.
- AMADHILA, H. 2014. The Determinants of Effective and Efficient Land Development and Delivery Systems In Windhoek. Windhoek: Namibia University of Science Technology.
- ANNAMALAI, T. R. & JAIN, N. 2013. Project Finance and Investments in Risky Environments: Evidence from the Infrastructure Sector. *Journal of Financial Management of Property and Construction*, 18, 251-267.
- ASINO, K. & CHRISTENSEN, Å. 2018. Assessment of Housing Needs in Namibia. Windhoek, Namibia: Integrated Land Management Institute (ILMI).
- BANK OF NAMIBIA, 2017. *Bank of Namibia Annual Report*, Windhoek: Bank of Namibia.
- BENKOVIC, S. & MILOSAVLJEVIC, M. 2009. Advantages And Disadvantages of Project Financing. *Manage*, 52, 31-39.
- BENOIT, P. 1996. Project Finance at the World Bank - An Overview of Policies and Instruments. Washington: The International Bank for Reconstruction and development, The World Bank.
- BERG, B. L. 2009. Qualitative Research Methods for the Social Sciences. *In: 7TH* (ed.). Long Beach: Pearson.
- BERNARD, H. R. 2002. *Research methods in anthropology: qualitative and quantitative approaches*, Walnut Creek, AltaMira Press.
- BORBASI, S., JACKSON, D. AND WILKES, L. 2005. Fieldwork In Nursing Research: Positionality, Practicalities, and Predicaments. *Journal of advanced nursing*, 5, 493-501.
- BRADFORD, A., 2017. *www.livescience.com*. [Online]  
Available at: <https://www.livescience.com/21569-deduction-vs-induction.html>
- [Accessed 16 July 2020].

- BRAUN, V., TERRY, G., HAYFIELD, N. & CLARKE, V. 2017. The SAGE Handbook of Qualitative Research in Psychology. *Thematic Analysis*. London: SAGE Publications Ltd.
- CHARMAZ, K. 2006. *Constructing Ground Theory - A Practical Guide Through Qualitative Analysis*, London, Sage Publications inc.
- CHIRIPANHURA, B. M. 2018. Housing in Namibia: The Challenges and Prospects for Adequate Future Provision. Windhoek: Integrated Land Management Institute (ILMI).
- CITY OF WINDHOEK, 2016. *Mayoral Annual Report*, Windhoek: City of Windhoek.
- CRESWELL, J. W. 2007. *Research Design: Qualitative, Quantitative, and Mixed Methods Approach*. London, Sage.
- DENZIN, N. K. 1970. *Politics and Promises: The Values of Social Sciences*, Chicago.
- DENZIN, N. K. & LINCOLN, Y. S. 2005. *Introduction: The Discipline and Practice of Qualitative Research*, Washington, DC, Sage Publications Ltd.
- DONG, F., CHIARA, N., KOKKAEW, N. & Wu, J. 2011. Stochastic Optimization of Capital Structure in Privately Funded Infrastructure Projects. *The Journal of Private Equity*, 15, 36-47.
- ESTY, B.C., 1999. Improved Techniques for Valuing Large-Scale Projects. *The Journal of Structured Finance*, 5(1), pp.9-25.
- ESTY, B., CHAVICH, C. & SESIA, A. 2014. An Overview of Project Finance and Infrastructure Finance. Boston: Harvard Business School.
- FADHLEY, S. A. 1991. A Study of Project Finance Banking: With A Special Reference to Determinants of Investment Strategies for Major Petroleum Projects Located in Less Developed Countries. Loughborough: Loughborough University of Technology.
- FINNERTY, J. D. 2007. *Project Financing: Asset-Based Financial Engineering*, Hoboken, New Jersey, John Wiley & Sons, Inc.
- FIRST NATIONAL BANK, 2017. *FNB Residential Property Monthly*, Windhoek: First National Bank.

- FRANKFORT-NACHMIAS, C. & NACHMIAS, D. 2008. *Research Methods in the Social Sciences*, New York, Worth Publishers.
- GATTI, S. 2008. *Project Finance in Theory and Practice: Designing, Structuring, and Financing Private and Public Projects*. London: Elsevier/Academic Press.
- GOODMAN, V. D. 2011. *Qualitative Research and the Modern Library*. In: 1ST (ed.). Elsevier Science.
- GOVERNMENT OF NAMIBIA, 2017. NDP4 Terminal Report 2012/13 – 2016/17, Windhoek: Government of Namibia
- GUILLERMO, D. 2018. *Housing*. Windhoek: Namibia University of Science and Technology.
- HAIPINGE, J. 2018. *An Investigation of the Low-Income Housing Strategy in Namibia: A Case Study Of The Okuryangava Suburb in the City of Windhoek in the Khomas Region*. Windhoek: University of Namibia.
- HEWES, M. 2017. *Housing Need Is Different from Housing Demand* [Online]. Surrey: The Financial Times Limited [Accessed].
- HOFFMAN, S. L. 1989. A Practical Guide to Transactional Project Finance: Basic Concepts, Risk Identification, and Contractual Considerations. *The Business Lawyer*, 45, 181-232.
- INTERNATIONAL FINANCE CORPORATION, 1994. *Project Finance to Developing Countries*. 2121 Pennsylvania Avenue, N.W. Washington, D.C. 20433, U.S.A.: International Finance Corporation.
- KAWULICH, B. 2004. *Qualitative Data Analysis Techniques in Qualitative Research*. Amsterdam.
- KLEIMEIERA, S. & VERSTEEGA, R. 2009. *Project Finance as a Driver of Economic Growth in Low-Income Countries*. Maastricht: Maastricht University.
- LAERD DISSERTATION, 2012. *Laerd Dissertation*. [Online] Available at: <http://dissertation.laerd.com/purposive-sampling.php>  
[Accessed 22 July 2020].

- LOPEZ, V. & WHITEHEAD, D. 2013. Sampling Data and Data Collection in Qualitative Research. *In: 5TH* (ed.). Elsevier.
- MALPASS, P. & MURIE, A. 1999. *Housing Policy and Practice*, Palgrave, London, Macmillan Publishers Limited
- MAXWELL, J. A. & CHMIEL, M. 2014. *The SAGE Handbook of Qualitative Data Analysis: Notes Toward a Theory of Qualitative Data Analysis*, London, 55 City Road, SAGE Publications, Inc.
- MEGGINSON, W. L. 2010. Introduction to the Special Issue on Project Finance. *Review of Financial*, 19, 47-48.
- MICHELSON, W. & VLIET, W. V. 2000. *The Sociology of Housing*, London, SAGE.
- MILLIGAN, V., GURRAN, N., LAWSON, J., PHIBBS, P. & PHILLIPS, R. 2009. *Innovation in Affordable Housing in Australia: Bringing Policy and Practice for Not-For-Profit Housing Organizations Together*. Sydney: Australian Housing and Urban Research Institute.
- NAKWEENDA, T. L. 2014. An Investigation into Housing Finance Schemes in Namibia: A Case Study Of Otjumuse, Windhoek. Windhoek: University of Namibia.
- NAMIBIA STATISTICS AGENCY, 2016. Namibia Household Income and Expenditure Survey - 2015/2016 Report, Windhoek: Namibia Statistics Agency.
- NAPIER, M., UANGUTA, E., RUST, K. & MOSHA, A. 2011. Housing in Namibia: Has the situation changed 21 years after independence? Windhoek: Bank of Namibia.
- NEUMAN, L. 2012. *Basics of Social Research: Qualitative and Quantitative Approaches*, Pearson Education, Inc.
- NIISHINDA, H. N. E., KADHILA, I., FILLIPUS, H., MUKASA, N. & MUSHENDAMI, P. 2014. Infrastructure Financing in Namibia. Windhoek: Bank of Namibia.
- NOWELL, L. S., NORRIS, J. M., WHITE, D. E. & MOULES, N. J. 2017. Thematic Analysis. *International Journal of Qualitative Methods*, 16, 160940691773384.
- OWOLABI, H., OYEDELE, L., ALAKA, H. & AKINADE, S. A. M. B. A. O. 2020. Risk Mitigation In PFI/PPP Project Finance - A Framework Model for Financiers 'Bankability Criteria. *Built Environment Project and Asset Management*, 10, 28-49.

- PALINKAS, L. A., HORWITZ, S. M., GREEN, C. A., WISDOM, J. P., DUAN, N. & HOAGWOOD, K. 2015. Purposeful Sampling for Qualitative Data Collection and Analysis. *Adm Policy of Mental Health*.
- PATTON, M. Q. 1987. *How to Use Qualitative Analysis in Evaluation*, London, Sage.
- PATTON, M. Q. 2002. *Qualitative Research & Evaluation Methods*, Thousand Oaks, CA, Sage Publications.
- POPE, C., ZIEBLAND, S. & MAY, N. 2000. Qualitative Research in Health Care: Analyzing Qualitative Data. *The BMJ*, 320 114-116.
- REFINITIV, 2019. *Global Project Finance Review - First Half 2019, Managing Underwriters*. [Online] Available at: <https://www.refinitiv.com/dealsintelligence/>  
[Accessed 01 August 2019].
- REMMERT, D. & NDHLOVU, P. 2018. Housing In Namibia: Rights, Challenges, and Opportunities. Windhoek: Institute for Public Policy Research.
- SAUNDERS, M., LEWIS, P. & THORNHILL, A. 2003. *Research Methods for Business Students*. Essex: Prentice Hall: Financial Times.
- SILVERMAN, D. 2013. *Doing Qualitative Research: A Practical Handbook*, SAGE publications limited.
- SORELL, T. 2008. Project Financing in Developing Countries, New Corporate Social Responsibility, Human Rights, and Multinationals. *Essex Human Rights Review*, 5, 1-9.
- STARKS, H. & BROWN TRINIDAD, S. 2007. Choose Your Method: A Comparison of Phenomenology, Discourse Analysis, and Grounded Theory. *Qualitative Health Research*, 17, 1372-1380.
- SUBRAMANIAN, K. V. & TUNG, F. 2016. Law and Project Finance. *Journal of Financial Intermediation*, 25, 154-177.
- TAYLOR, S. J., & BOGDAN, R. (1998). *Introduction to qualitative research methods: A guidebook and resource* (3rd ed.). John Wiley & Sons Inc.

THE INTERNATIONAL FINANCE CORPORATION, 1999. *Project Finance in Developing countries*, Washington: International Finance Corporation.

THE REPUBLIC OF NAMIBIA, 2017. *Public-Private Partnership Act 4 of 2017*, Windhoek: Republic of Namibia.

THOMSON REUTERS, 2018. *Global Project Finance Loans Review*, s.l.: Thomson Reuters.

TORAB, E. S. 2018. *A Law or Just a Hypothesis? A Critical Review of Supply and Demand Effect on The Affordable Residential Markets in Developing Countries*. Alexandria Engineering Journal, 4081-4090.

UN-Habitat Report, 2005. *The Right to Adequate Housing*, New York: United Nations.

WHYTE, K., 2019. *Baker Mckenzie*. [Online]  
Available at: <https://www.bakermckenzie.com/en/insight/publications/2019/09/key-considerations-project-bankability-africa>

[Accessed 21 July 2020].

WILSON, J. & WOOD, D. 2019. *Housing Investment Landscapes Namibia*. Centre for Affordable Housing in Africa, Namibia.

WOLF, C., JOY, D., SMITH, T. W. & FU, Y.-C. 2016. *The SAGE Handbook of Survey Methodology*, 55 City Road, London, SAGE Publications Ltd.

WORLD BANK GROUP, 2016. *ppp.worldbank.org*. [Online]  
Available at: <https://ppp.worldbank.org/public-private-partnership/financing/project-finance-concepts>

[Accessed 21 July 2019].

WORLD BANK, 2014. *Public-Private Partnerships: Reference Guide Version. 2 ed.* Washington: World Bank Group.

YESCOMBE, E. R. 2002. *Principles of project finance*, Elsevier.

YESCOMBE, E. R. 2007. *Project Finance and PPPs*. In: YESCOMBE, E. R. (ed.) *Public-Private Partnerships*. Oxford: Butterworth-Heinemann.

## **APPENDIX A - RESEARCH INFORMATION SHEET**

Project Title: An exploratory study of project finance as a funding model for affordable housing development in Windhoek, Namibia

Researcher: Olsen Hamana

Supervisor: Dr Frank Ametefe

Funder: None

### **Introduction**

You are being invited to take part in this research study because of your knowledge in the field of project finance/ affordable housing. Olsen Hamana is conducting this study at the University of Cape Town.

### **Purpose**

The research is significant as it explores a potential funding model to resolve the current affordable housing backlog facing Windhoek and Namibia at large. The study intends to increase the understanding of project finance in the housing sector in Namibia. The outcome of this research will help prompt the use of project finance in the housing sector and other infrastructure sectors.

### **Study Procedures**

Participants in this research will be generally interviewed on the project finance model and affordable housing. Interviews will either be face-to-face or via zoom or skype. Face-to-face interviews will adhere to the current World Health Organization regulations regarding Covid-19, ensuring a safe distance between the researcher and the interviewee, wearing face masks, and both parties sanitize before and after the interview. The interview will be for a period  $\pm$  30 minutes.

## **Risks**

We will do our best to protect the information we collect from you during this study. We will not collect any information identifying you to protect your confidentiality further and avoid any potential risk for an accidental breach of confidentiality.

## **Costs**

There will be no costs to you for participation in this research study.

## **Compensation**

You will not be paid for taking part in this study.

## **Confidentiality**

All respondent information will be treated with strict confidentiality. The data collected from the respondent during this study will be stored with a code name or number to match you to your answers. Participant information will be kept secure and protected with the master folder protected with a password with only the researcher and supervisor having access, and this will be held for the duration of the research.

## **Voluntary Participation/Withdrawal**

Taking part in this study is voluntary. You are free not to answer any questions or withdraw at any time. You may choose not to participate in this study, or if you decide to take part, you can change your mind later and withdraw from the study.

## **Questions**

If you have any questions about this study now or in the future, you may contact me, Olsen Hamana, on the following phone number [REDACTED] or via email [hmnols001@myuct.ac.za](mailto:hmnols001@myuct.ac.za).

## **Participation**

Your participation is voluntary, and you may refuse to participate without penalty or discrimination at any time.

## APPENDIX B - CONSENT FORM

**Project Title:** An exploratory study of project finance as a funding model for affordable housing development in Windhoek, Namibia

**Researcher:** Olsen Ndeiweda Hamana

I volunteer to participate in a research project conducted by Olsen Ndeiweda Hamana from the University of Cape Town. I understand that this research project is designed to study Project Finance as a Funding Model for Affordable Housing Development in Windhoek, Namibia.

As a \_\_\_\_\_ at \_\_\_\_\_ I understand that I am being invited to take part in an interview. I understand that in agreeing to participate:

My participation is voluntary. I understand that I will not be paid for my participation.

The interview will last approximately 30 minutes. Notes will be written during the interview and audiotaped. I can decline to be recorded.

I understand that if I feel uncomfortable in any way during the interview, I have the right to decline to answer any question or to leave the interview session.

If I choose to be interviewed, I have the right to view and comment on the transcribed interview data before the findings are analyzed.

I have read and understood the participant information sheet provided to me. I have answered all my questions to my satisfaction, and I voluntarily agree to participate in this study.

All the information collected from me for this research will be treated with strict confidentiality.

I have been given a copy of this consent form.

I hereby agree/disagree (circle the applicable option) to participate in the interview for this study.

I hereby agree/disagree (circle the applicable option) to the audio recording of my interview for this study.

Name: \_\_\_\_\_ Signed: \_\_\_\_\_

Date: \_\_\_\_\_

## **APPENDIX C - SEMI-STRUCTURED INTERVIEW OUTLINE**

### **Research Title:**

**AN EXPLORATORY STUDY OF PROJECT FINANCE AS A FUNDING MODEL FOR AFFORDABLE HOUSING DEVELOPMENT IN WINDHOEK, NAMIBIA**

### **Research Objectives:**

To explore the use of the project finance model as a viable funding instrument for the Windhoek affordable housing development projects.

### **Questionnaire Themes:**

Project finance, Affordable housing, Project Management

### **Interview Questions:**

- 1 Briefly tell me about your organization, your current role, and how long you held the position?
- 2 Tell me about the funding models you worked with for housing developments or infrastructure projects?
- 3 Would you say project finance is one of the models used for funding housing developments? Would you please elaborate more?
- 4 You have mentioned project finance; please expand on your experience with the project finance model; what sector did you / your organization execute the model in?
- 5 Was the model implemented successfully?
- 6 In your view, is the project finance model a viable funding instrument for affordable housing developments in Windhoek?
- 7 Have you conducted or are aware of any feasibility studies on the project finance model for affordable housing development?

- 8 What are/will be the benefits of using the project finance model in affordable housing projects?
- 9 What challenges do you foresee if or when the project finance model is implemented in the housing sector?
- 10 Regulatory Frameworks?
  - a Are you aware of any regulatory frameworks that govern funding models, such as the project finance model in Namibia?
  - b What regulatory frameworks or policies will need to be in place to implement the project finance model successfully?
- 11 What conditions (political or economic) will be required for the project finance model to succeed in the Namibian housing market?
- 12 Who will be the major stakeholders in the project finance model?
- 13 In your opinion, do the fundamentals of project management play a vital role in the successful implementation of the project finance model?
- 14 Any other comments on the project finance model?
- 15 Any other comments on funding for affordable housing in Windhoek?

# APPENDIX D - SIGNED ETHICS CLEARANCE FORM

Application for Approval of Ethics in Research (EIR) Projects  
Faculty of Engineering and the Built Environment, University of Cape Town

## ETHICS APPLICATION FORM





**Please Note:**

Any person planning to undertake research in the Faculty of Engineering and the Built Environment (EBE) at the University of Cape Town is required to complete this form **before** collecting or analysing data. The objective of submitting this application *prior* to embarking on research is to ensure that the highest ethical standards in research, conducted under the auspices of the EBE Faculty, are met. Please ensure that you have read, and understood the **EBE Ethics in Research Handbook** (available from the UCT EBE, Research Ethics website) prior to completing this application form: <http://www.ebe.uct.ac.za/ebe/research/ethics1>

APPLICANT'S DETAILS		
Name of principal researcher, student or external applicant	Olsen Ndeiweda Hamana (HMNOLS001)	
Department	Construction Economics and Management	
Preferred email address of applicant:	HMNOLS001@myuct.ac.za	
If Student	Your Degree: e.g., MSc, PhD, etc.	Msc. Project Management
	Credit Value of Research: e.g., 60/120/180/360 etc.	60 credits
	Name of Supervisor (if supervised):	Dr. Frank Kwakutse Ametefe
If this is a research contract, indicate the source of funding/sponsorship	N/A	
Project Title	AN EXPLORATORY STUDY OF PROJECT FINANCE AS A FUNDING MODEL FOR AFFORDABLE HOUSING DEVELOPMENT IN WINDHOEK, NAMIBIA	

**I hereby undertake to carry out my research in such a way that:**

- there is no apparent legal objection to the nature or the method of research; and
- the research will not compromise staff or students or the other responsibilities of the University;
- the stated objective will be achieved, and the findings will have a high degree of validity;
- limitations and alternative interpretations will be considered;
- the findings could be subject to peer review and publicly available; and
- I will comply with the conventions of copyright and avoid any practice that would constitute plagiarism.

APPLICATION BY	Full name	Signature	Date
<b>Principal Researcher/ Student/External applicant</b>	Olsen Ndeiweda Hamana		03/08/2020
SUPPORTED BY	Full name	Signature	Date
<b>Supervisor (where applicable)</b>	Dr. Frank K. Amctefc		17/08/2020
APPROVED BY	Full name	Signature	Date
<b>HOD (or delegated nominee)</b> Final authority for all applicants who have answered NO to all questions in Section 1; and for all Undergraduate research (Including Honours).	Louie van Schalkwyk		18/09/2020
<b>Chair: Faculty EIR Committee</b> For applicants other than undergraduate students who have answered YES to any of the questions in Section 1.	Louie van Schalkwyk		18/09/2020

## **APPENDIX E - SAMPLE INTERVIEW TRANSCRIPT**

**Olsen:** The research explores the project finance model for affordable housing developments and infrastructure projects. I am exploring it as an instrument for affordable housing development in Windhoek.

Other: Okay, perfect

**Olsen:** Yeah, so you have kind of an understanding of project finance, how it works?

Other: Yeah, the project finance itself I've got much experience with, I've funded, I was part of the team that funded the first project finance Solar PV-Plant Namibia, and I'm doing the first one in Botswana now as well, housing development I haven't that much experience, but the same principles apply anyway.

**Olsen:** Briefly tell me about your organization, your current role, and for long you've been in that role?

Other: Okay so, I currently work for the Capricorn Group, the Namibian Financial service institute. I'm in a bit of a broad role that's got to do with corporate development, which is internal mergers and acquisitions of the group- that's the first thing. And secondly, specialized finance, so originating and executing specialized financed deals, project finance, is a part of specialized finance and developing new products in the specialized finance space. So, something like structured trade finance, for instance, is something we are working on.

Yeah, I've been in the role of my current company for about just over two years, but before that, I worked for Rand Merchant Bank Namibia in a very similar role for two and a half years. So, I'd say overall I have got close to 5 years experience in, let's call it, specialized finance and corporate finance

**Olsen: Tells me about funding models you worked on housing developments or infrastructure projects?**

Other: In general infrastructure projects, I guess projects financing have you known the structure of choice, especially when you've got infrastructure projects that have long term off-take agreements, for instance, with your renewable energy projects in the region, you've got 25-year power purchase agreements or 20 years power purchase agreement entered into with well-established utilities like ESCOM or Nampower or BPC in Botswana, and at the end of the day the principle of project finance is just that you ring-fence your funding to the project itself. So, there is no guarantee from apparent or other external cash flows; your funding goes into a ring-fence project, and the repayment comes from the project itself, and that's the overarching principle of project finance.

In terms of housing development. I guess you see quite a few different models; the traditional project finance model usually doesn't quite fit into the low-cost housing space. I haven't seen it implemented in the same way you would with other infrastructure projects. Yeah, I think the one thing is that with project financing generally, a funder is happy to take on construction risk from the start. So, they would fund through construction until the plant is commissioned, and once it's trusted, it starts earning revenue, and they fund through that entire period. With housing development, what we have seen is that your traditional funders don't like that initial construction risk and development risk. They either, what I have seen is they funded large low-cost housing projects with an extensive guarantee from somewhere, so IHS or an entity like that or they only start funding where say for instance you've got a low-cost housing development, and the houses are fully built. The person who is going to move into the house or has bought the house receives a letter from the bank saying they have received the approval for funding, and that's kind of when banks are happy to fund the overall model. So traditionally, project finance, I haven't seen it strictly implemented in housing development.

**Olsen: You mentioned project finance; in what market sector did your organization execute this model? So, you said the Solar PV plant.**

Other: Yeah, so energy is a big one; what is a big one? Telecom is also a good sector for project financing. So, those are the ones I have touched on. Apart from that roads and logistics, is also a good one. So, any extensive infrastructure that essentially generates revenue is a relatively reliable source of revenue as usually comforting for project financing

**Olsen: When I started with the research, most of the project finance model was mainly implemented in mining. Let's say about 70% of the projects used project finance.**

Other: Yes, one thing to add is there's a bit of a difference in the mining between; they usually call it your junior miners and your significant miners. So, your significant miners are you anglers and your BHP Billiton and Vale and this large entity- DE BEERS and they usually often obtain project financing, but when it comes to junior miners so the smaller companies, they still get project financing, but it definitely at much tougher terms than the bigger guys get it. But yeah, mining is a space- resources in general

**Olsen: Okay, would you say, when you implemented the model on the renewable energy project you guys worked on, was it successful or going well.**

Other: The big risk, your long-term risk with the energy projects is insolvency, and you know the financial strength of your utility that buys the power and that so far Nampower is doing well, ESOM still has money, BPC in Botswana has money., so yeah until you see major issues there, those projects will still run smoothly.

**Olsen. We move to Question 4 since you said you haven't- we don't know if it works in the affordable housing space, so we will move on to question 5: Are you aware of any feasibility studies done on the project finance? In general.**

Other: I am sure there are plenty, I can't think of any specific ones, but without a doubt, there must be a few. Just in the affordable housing space, I think entities like IHS, Africa Growth Capital should have feasibility studies definitely

**Olsen: Question 6 is about the opportunities or benefits of using the project finance model. This was on affordable housing, but we can just in general, what are the benefits of using project finance model**

Other: I think there are a few benefits, obviously for the company that's building the infrastructure project- that's the shareholders, project financing is a way of developing a large project with - I don't want to say minimum capital but without a very big balance sheet or big guarantor, big company standing behind the whole thing and guaranteeing it. So, let's say you don't need as much equity to start a project and to build and develop a project. On the project finance model side, the big thing at the end of the day is to build large projects using smaller balance sheets. That's the big thing at the end of the day, and I mean, apart from that, there are many smaller things, but that's the big one.

**Olsen: Any challenges or risks using the project finance model?**

Other: There are many risks, so the big thing is for any funder that funds on a project finance basis is, your security at the end of the day is limited to whatever is in the project. So, as a funder, you definitely taking on a little bit more risk and what we call your loss given default, so funders generally price their loans on two main metrics. The one is the probability of default which is you know what's the probability of a borrower not repaying you, and the other big thing is loss given default. So, say, for instance, there's a default, and your borrower can pay you anymore, and now you need to you know liquidate the assets, so you have to sell everything and make your money back.

So, your loss given default in a project finance scenario is much bigger because your assets are limited. The things you can physically go and take and sell and real estate, your assets are better, your security because you've got bricks and houses that are worth a lot more in the secondary

market than solar panels. The other thing is also a regulatory risk, so in Namibia, especially in Southern Africa, a big issue for many funders and investors is regulatory issues. So I will give you an example, Namibia with the Solar PV projects globally it's a standard that the government takes government risk even in South Africa it's written in the power purchase agreement that if there's expropriation that legally the government must compensate the company for expropriation or any political event that might damage the project or pose a risk for the investors but in Namibia, that's not the case.

In Namibia, the government and Nampower say that if there's a big political event that your plant can no longer repay, then that's your risk as an investor and funder. This has made it very difficult for a lot of those projects to be funded, so regulation is a massive thing, especially in project finance because you need to make sure that everything is watertight and that the things that can cause detriment to your project is within your control and as soon as something is outside of your control its very difficult to manage that risk.

**Olsen: Are you aware of any frameworks that govern funding models**

Other: Not really, I might be mistaken, but as far as I know, there aren't regulatory frameworks that govern funding models. To a certain extent, I guess it would be right to mention it, but someone like the Bank of Namibia, for instance, regulate the banks and the banks are big funders to project finance transactions, and the Bank of Namibia regulates the banks in terms of how they fund those projects. How much risk they are allowed to take and how much safety capital they must put away, and how they can look at security and those things- so that's one thing. And then a bit outside of this scope, but there's a PPP framework in Namibia, and I think affordable housing is ideal for a PPP-type structure. So, there's a PPP framework, but outside of that, not specifically to funding or housing in project finance.

**Olsen: What frameworks or policies would we need for a project finance model to be regulated? What kind of policies would we need?**

Other: I mean that's a very tough one, I think where project financing model is used to fund something related to government, so say for instance a power project with Nampower, you know there we would need regulatory frameworks that correctly- and that's the important thing with project finance, and I fail to mention. In project finance, the important thing is to allocate risk to the party that's best placed to manage that risk. So, you know the risk of a project not being built properly is at the end of the day, the guy/ company that's building the project should take the risk, and they should guarantee their work essentially. And the same with government, if certain government risks could detriment the project, then the government is best placed in managing that risk, and they should take responsibility for that risk. So those are two things; I think in terms of regulatory frameworks, it's a tough one; I must say, in many cases, people who promote the project finance model would like a freer and open market rather than more regulations. I can't think of anything specific that would need to be removed from the government's involvement.

**Olsen: What other factors or conditions, you mentioned free market, conditions like political or economic would be required to succeed?**

Other: I think just an open market in general, so the big thing is it's a big trade-off, and it's something that many countries debate many hours and days on is, at the end of the day you have to make it attractive for investors to put money in place, if it doesn't look attractive, they are not going to come. But also, as a country, you have to protect your interests, and it's a fine balance; it's a tough one to get right at the end of the day. Everyone, each side, no matter how much you lean to one side, the other side will say they are detrimental.

The environment is just a fair environment in terms of political and economic conditions, An environment that's fair to investors and fair to each party at the end of the day; I don't think any party should be given preference. It should just be fair, and a big thing is also to a certain extent following global and international standard practices to see in which countries specifically with affordable housing to look at countries where it's worked using a project finance model. And just to be open to implement that and not to copy it completely but to take from that what you can implement in your own country and I think that's the big thing as well.

**Olsen, who are the major stakeholders in the project finance model?**

Other: So, because it's so ring-fenced, any entity that at the end of the day either can benefit from then module or can be, I don't want to say detrimental but as risk almost risk invested in the model at the end of the day is a major stakeholder. Anyone that can make money from the model or can lose money from the model or not just money but any I guess even reputation at the end of the day - and that's everyone that's equity shareholders so your investors, your debt funders which are your banks and all of that, the off-take at the end of the day- the person that will benefit from what the project produces and then everyone around your projects that's impacted and any regulatory entities that form a regulatory environment in which the project needs to operate. I mean, I might be missing one or two, but those are the major ones, I would say.

**Olsen: Do you think the fundamentals of project finance play a big role in implementing a project finance model on a project?**

Other: Yes, I think definitely; I mean the fundamentals are quite simple, it what I said at the start that the project is ring-fenced and all your money into and out of the project is only via the project and the other thing is that the best entity placed to manage the risk should be the one that manages that risk. So those are the big things, and, in my opinion, if those fundamentals are breached or changed significantly, then you no longer have a project finance model.

**Olsen: Any other comments on the project finance model you want to share?**

Other: Nothing really, I think the one thing I can say is that I don't know, and I'm talking specifically from a banking perspective, a way of - we talked of regulations on banks a moment ago, and the regulations on banks are getting tougher and tougher, and it's more and more difficult for banks to fund into project finance models because of the safety factors, the capital they need to put aside or the just what the regulators at the end of the day allow them to do so project financing is moving away from banks more and more and more towards your asset managers, your real asset managers, and it's something you will see continuing in the future. Even something like affordable housing, you know, using something that looks like a project finance model will take five years or

so from now- I don't think the banks will touch it; it will have to be done through asset managers and real asset funds.

**Olsen: The final question, any comments on funding for affordable housing in Windhoek?**

Other: So, I think the one thing I will comment on is that I have spoken to a few people about affordable housing, especially in Windhoek, and from what I understand, the most difficult thing for the government is regulating, you know, what people what investors and developers earn on affordable housing projects especially in Namibia. Many lands are allocated for affordable housing. The house prices are sky-high because the guys are making 50% margins and 60% and 70% margins, and that's maybe in many places you want an open market and free regulatory environments, but in some instances and especially in affordable housing, you actually- especially where its government endorsed and targeted towards a certain segment you need a regulatory environment that makes sure you developers at the end of the day benefit too much from actually doing the thing. From what I have heard, that's been a bit of an issue in Windhoek over the past few years, but yeah, there are a few projects; I know IHS is doing something in Windhoek with one of the big banks, we worked on an affordable housing roll-out, a smaller one in Windhoek with a company that uses investor money from you Europe to develop and then they use bank funding once they have got commitments from people to buy. So there's been a bit of movement in this space, and I think it's something that hasn't quite been rolled out properly and successfully, but it's a major issue, and it needs to be looked at.

**Olsen: Thank you very much for the insight. It's very insightful**