



Exploring the low-income rental housing market in the platinum mining sector for inclusive business opportunities

Dissertation submitted to the Graduate School of Business, University of Cape Town,
in fulfilment of the requirements for the degree
Master of Philosophy in Inclusive Innovation

Date: 24 June 2017

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ACKNOWLEDGEMENTS

This research was made possible by financial support from the Bertha Centre for Social Innovation and Entrepreneurship. I am grateful to the centre for receiving their support, and I hope their faith in me was warranted.

My heartfelt gratitude goes to my research supervisor, Professor Ralph Hamann. His availability, guidance and patience have been key in assisting me through this journey.

Lastly, I am grateful to the many interviewees and participants who gave of their valuable time and energy for this research.

ACRONYMS AND ABBREVIATIONS

AAP	Anglo American Platinum
AMCU	Association of Mine workers and Construction Union
BBBEE	Broad Based Black Economic Empowerment
CC	Collaborative Consumption
COSATU	Congress of South African Trade Unions
CSR	Corporate Social Responsibility
CSI	Corporate Social Investment
DMR	Department of Mineral Resources
DBSA	Development Bank of Southern Africa
DHS	Department of Human Settlements
EXCO	Executive Committee
FLISP	Finance-Linked Individual Subsidy Programme
HDSAs	Historically Disadvantaged South Africans
HOA	Home Ownership Allowance
IDP	Integrated Development Plan
LOA	Living Out Allowance
MPRDA	Mineral and Petroleum Resources Development Act 28 of 2002
MDGs	Millennium Development Goals
NUM	National Union of Mine Workers
NGO	Non-Governmental Organisation
PGMs	Platinum Group Metals
SAVs	Single Accommodation Villages
SME	Small to Medium Enterprise
SPP	Special Presidential Package
TEBA	Employment Bureau of Africa
WENELA	Witwatersrand Native Labour Association

GLOSSARY

Broad-Based-Black-economic Empowerment (BBBEE)	A social or economic strategy, plan, principle, approach or act, which is aimed at redressing the results of past or present discrimination based on race, gender or disability of historically disadvantaged persons.
Community	A coherent, social group of persons with interests or rights in an area of land which the members have or exercise communally in terms of agreement, custom or law.
Collaborative consumption	Coordinating the acquisition and distribution of a resource for a fee or other compensation.
Employee	An employee is defined as any full-time person who directly works for the owner of a reconnaissance permission/permit, prospecting right, mining right, mining permit, technical cooperation permit, exploration right and production right, and who is entitled to receive any direct remuneration from the holder of any of the abovementioned rights, including any person working for an independent contractor.
Historically Disadvantaged South African (HDSA)	Any person, category of persons or community, disadvantaged by unfair discrimination before the Constitution of the Republic of South Africa, 1993 (Act No. 200 of 1993) came into operation.
Integrated Development Plan (IDP)	A plan aimed at the integrated development and management of a municipal area as contemplated in the Municipal Structures Act (Act No. 117 of 1998).
Labour-sending areas	Municipalities from where employees are recruited.
Management	All employees within the Paterson D, E, and F bands.
Major labour-sending area	A major labour-sending area is a municipality from which more than 10% of the mine's workforce is sourced.
	In the context of rural areas outside the mine community, a major labour-sending area is a municipality from which more than 5% of the mine's workforce is sourced.
Migrant labour	Migrant labour refers to workers who originate from the rural labour-sending areas, who live in hostels or other mine-provided accommodation, and who have no formal local dependants.
	Provincial migrant workers are those who come from areas within the mine's host province but outside the mine community.
	South African migrant workers are those who come from other South African provinces.
	Foreign migrant workers are those who come from neighbouring Southern African Development Community (SADC) states. It is these workers who are referred to as migrant workers in the Mineral and Petroleum Resources Development Act.

Mine community	The mine community is defined as those towns, villages and settlements that fall within the area surrounding the mine.
	As far as the Social and Labour Plan is concerned, only the municipality or municipalities within the mine community from which the mine sources 10% or more of its labour are regarded as major labour-sending areas.
Municipality	A local municipality that shares municipal executive and legislative authority in its area with a district municipality within whose area it falls and which is described in Section 155 (1) of the Constitution as a Category B municipality.
Rural labour-sending area	A rural labour-sending area is a municipality outside the mine community from which the mine sources its labour. It is almost always located in what is traditionally regarded as a rural area.

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ABSTRACT

The South African mining sector faces growing expectations from the academic, political, and regulatory spheres to play a greater role in facilitating development in communities affected by mining operations. The facilitation of affordable decent housing for lower-income employees is one of these expectations. In the South African platinum mining sector, the growth of informal settlements around mining operations presents various socio-economic challenges in need of innovative solutions. To date, mining companies have implemented various initiatives to improve housing and living conditions for lower-income mine employees. Yet these initiatives have not resulted in major improvements, arguably due to the complex nature of the housing market around mining operations. This complex housing market demands a greater understanding and consideration of inclusive business models such as the adaptation of collaborative consumption business models. In addition, scholarly literature on community development and corporate social responsibility has not given enough attention to the complex housing market in the platinum mining sector. I thus ask, what characterises the supply and demand of rental housing in the platinum mining sector, and how do suppliers and customers currently connect? I conducted 18 interviews with rental housing providers, migrant mine workers, and company group housing managers. Archival information in the form of company documents supplemented the interviews. Based on a case study of Anglo American Platinum's Amandelbult mining operation, I find that the low-income rental housing market is characterised by a critical shortage of rental housing stock, and suppliers and customers generally connect through informal peer to peer networks. This characteristic of the rental housing market shows that mining companies initiatives are constrained due to a limited understanding of complexities in this market, and it suggests an innovative financing approach to building rental housing stock as a more immediate opportunity than adapting a collaborative consumption based business model.

1 INTRODUCTION

1.1 RESEARCH AREA AND PROBLEM

Research area

Internationally and in South Africa, the mining sector remains a contested space for a range of complex reasons. Falling commodity prices, growing expectations from stakeholders, and increasing regulation all contribute to this complexity (Mnwana, 2015; Morrison, Wilson, & Bell, 2012; Owen & Kemp, 2012). Despite these challenges, global mining companies continue to enter remote areas in search of mineral commodities to grow their operations. These remote areas are often in developing countries that face significant development challenges. Such development challenges are often significant unresolved problems that affect large populations, i.e. their impacts extend beyond the boundaries of a single organisation or community (Ferraro, Etzion, & Gehman, 2015, p. 365).

These problems represent grand challenges that significantly affect the welfare of human beings. Such grand challenges include climate change, water scarcity, poverty alleviation, exclusion, and lack of adequate shelter (Ferraro et al., 2015). The latter grand challenge of inadequate shelter is characterised by growing informal settlements in urban and peri-urban areas. Such settlements are particularly prevalent in South African mining areas (Bezuidenhout & Buhlungu, 2015; Chinguno, 2013; Ntema, Marais, Cloete, & Lenka, 2017). Internationally and locally, there are growing expectations for mining companies to play a bigger role in finding solutions to these development challenges (Hamann, 2003; Kemp, 2009; Morrison et al., 2012). Such expectations emanate from academic, political and regulatory circles. In South Africa, the housing and living conditions of mine workers have received increased attention from scholars following recent labour unrest in the platinum mining sector (Bezuidenhout & Buhlungu, 2015; Chinguno, 2013).

In South Africa, the mining sector is associated with a tortuous history of exploitation and collusion with repressive colonial and apartheid governments (Crush & James, 1991; Macmillan, 2012). This history is noteworthy due to the poor housing and working conditions of black African migrant workers created during the colonial and apartheid eras. During these times, black African migrant workers provided much of the labour that built the mining sector (Demissie, 1998, p. 446; Hunter, 1992).

The neighbouring countries of Lesotho, Swaziland, Malawi and Mozambique, as well as the homeland states of Transkei, Ciskei and Bophuthatswana, provided this migrant labour. For most of the colonial and apartheid periods in South Africa, black African migrant workers were accommodated in single sex compounds or hostels close to mining operations (Bezuidenhout & Buhlungu, 2011). These compounds were characterised by poor living conditions and restrictions on the movement of black African migrant workers (Crush & James, 1991). These restrictions confined black Africans to compounds and mining operations. In addition, successive colonial and apartheid governments introduced racist legislation that controlled the movement of black African migrant workers. The introduction of pass laws was the pinnacle of this surge of racist legislation, which required black Africans to carry documents to certify that they were permitted to work and reside in a certain area.

Soon after the establishment of the South African mining industry, African people started resisting these racist actions of repressive governments and mining companies. Through trade unions and an alignment with liberation movements, black African migrant workers fought to improve the living and working conditions in the mines. These acts of defiance formed part of a wider resistance movement against colonialism and apartheid in Southern Africa (Crush, 1989). Repressive governments, in collaboration with mining companies, resisted these movements to improve working and living conditions. Consequently, there was no significant improvement of living and working conditions up until the early 1980s, when the anti-apartheid movement gained momentum (Laburn-Pearl, 1990). The 1980s became a transition period towards democracy that saw the introduction of some reforms in the mining sector. These reforms resulted in skilled black workers being given permission to live in company houses or communities around mining operations (Bezuidenhout & Buhlungu, 2011). The early 1990s saw the abolition of many racist apartheid laws, which paved the way for black African migrant workers to exit the compounds and secure alternative accommodation. These migrant workers secured housing in local communities around mining operations. Following these gains, the National Union of Mine Workers (NUM) negotiated for a living out allowance (LOA) benefit for employees who lived outside the compounds (Bezuidenhout & Buhlungu, 2011; 2015; Chinguno, 2013). After the introduction of the LOA, there was a growth in informal settlements around mining operations (Bezuidenhout & Buhlungu, 2015, p. 534; Chinguno, 2013, p. 8).

Informal settlements have become a symbol of the post-apartheid mining era. To date, the platinum mining sector has seen the largest growth of informal settlements around mining operations, with the platinum mining town of Rustenburg experiencing the largest growth (Bezuidenhout & Buhlungu, 2015, p. 537). Close to half (42%) of Rustenburg's residents live in informal settlements, which is high compared to the 15% average in South Africa.

The post-apartheid mining era has also seen a growth in academic, political and regulatory expectations for mining companies to foster development in communities around mining operations. The political and regulatory expectations in particular led to the introduction of the Mineral and Petroleum Resources Development Act 28 of 2002 (MPRDA). The objective of the MPRDA is to facilitate meaningful participation of previously disadvantaged South Africans in the mining and mineral industry (Department of Mineral Resources [DMR], 2010). The Act further requires an improvement in the housing and living conditions of mine employees by converting or upgrading hostels or compounds into family units, attaining an occupancy rate of one person per room, and facilitating home ownership for all mine employees.

Owing to this growth in academic, political, and regulatory expectations, mining companies have introduced various initiatives to facilitate community development in the areas in which they operate. These initiatives are mainly implemented under the frameworks of regulatory compliance, Corporate Social Responsibility (CSR) and community development (Hamann, 2004; Muthuri, 2007). Currently, company-community relations remain a focus area for organisational scholars; in South Africa, the company-community relations of platinum mining companies have been the subject of ethnographic studies (Farrell, Hamann, & Mackres, 2012; Mnwana, 2015). These studies have largely focussed on how state legislation in democratic South Africa influences company-community relations. Common among the findings of these studies is that current legislation fails to capture the complex nature of communities around mining operations. Recently, there has been a rise in tensions between mining companies and communities (Capps & Mnwana, 2015). Tensions and struggles often arise between local communities and mining companies over land rights, community development and not benefiting from mining operations. In most cases, the colonial and apartheid regimes forcefully removed local people from their land to make way for mining.

Mining companies in South Africa have also implemented various initiatives to improve the living conditions of mine employees. The MPRDA Mining Charter requirements are the primary driver behind mining companies implementing employee housing programmes (DMR, 2010). To date, mining companies have largely focussed on converting compounds or hostels into single and family accommodation units. In addition, facilitating home ownership amongst mine employees is a key housing strategy of most mining companies. In the platinum mining sector, mining companies such as Anglo American Platinum (AAP), Lonmin, and Impala have implemented various home ownership schemes (Bezuidenhout & Buhlungu, 2015; Chinguno, 2013, p. 11), however, there remains a significant shortage of housing stock. Currently, few employees reside in converted compounds or hostels; most mine employees have opted to live in private accommodation and claim the LOA benefit. These mine employees rent housing in local communities or in informal settlements around mining operations (Bezuidenhout & Buhlungu, 2015; Chinguno, 2013). Further, most mine employees on the LOA are in the lower-income categories.

Problem statement

Despite organisational responses from government, mining companies, and non-governmental organisations (NGOs), communities around mining operations still face considerably development challenges. In considering organisational responses by platinum mining companies, most mining companies have not fully complied to regulations and milestones set out by the Department of Mineral Resources (DMR). These milestones include increasing ownership amongst Historically Disadvantaged South Africans (HDSAs), enterprise development, beneficiation, employment equity, human resource development, mine community development, improving housing and living conditions, sustainable development and reporting (DMR, 2010).

Considering housing challenges in the platinum mining sector, there is a critical shortage of housing stock. To date, the mining companies have not built enough houses to provide decent accommodation for all mine employees. Further, employer assisted home ownership programmes have not attracted lower-income migrant workers. Current studies indicate that most migrant workers prefer to rent housing rather than own (Chinguno, 2013). In addition, converted compounds or hostels are not popular amongst mine employees, resulting in many mine employees seeking alternative housing.

Currently, this alternative housing market is mainly the backroom rental market or informal settlements in local communities. Backroom rental units are available in local townships and villages around platinum mining operations. These backroom rental units are often single bachelor rooms with electricity. Tenants access water through a municipal tap or borehole in the rental property. Sanitation facilities are located outside near the rental unit. In contrast, housing in informal settlements is accessible through building or renting an informal structure. In most cases, there are no electricity or water services. Local municipalities sometimes provide sanitation facilities.

The shortage of rental housing stock and growth of informal settlements in the platinum mining sector demands a greater understanding and consideration of innovative responses such as the adaptation of inclusive business models. Such an understanding can aid the adaptation and replication of existing inclusive business models to develop decent and affordable rental housing stock. In considering such innovative responses, the sharing economy is one opportunity that can be explored as a pathway to facilitate development and address housing challenges. Uber and Airbnb are examples of organisations that operate under the field of the sharing economy. The sharing economy is characterised by the coordination of the use of resources such as living space, manpower, or cars, commonly through web-based information technologies (Mair & Reischauer, 2016). A unique feature of the sharing economy consists of “collaborative consumption” (CC) business models, which involve “coordinating the acquisition and distribution of a resource for a fee or other compensation” (Belk, 2014, p.1597). Airbnb is an example of a CC business model based on an online platform through which ordinary people rent out their excess housing space as accommodation for travellers (Guttentag, 2013).

1.2 RESEARCH QUESTIONS

The preceding discussion shows that housing for black African migrant workers has a complex history that is associated with exploitation, resistance and reform. Currently, the mining sector continues to face significant housing challenges. In the platinum mining sector, the growth of informal settlements and shortage of housing stock presents a grand challenge that calls for innovative solutions. In addition, the platinum mining sector has also seen the growth of an alternative rental housing market that supplies affordable housing to lower-income migrant mine workers. This research aims to define this rental housing market through a case study of AAP's Amandelbult mining operation. A set of research questions were identified to define this market.

Primary question

What characterises the supply and demand of rental housing in the platinum mining sector, and how do suppliers and customers currently connect?

Secondary questions

- 1) Which housing options are currently available for mine employees?
- 2) What influences the housing choices of mine employees?
- 3) What are the required design specifications for an inclusive rental housing business model?

The primary research question aims to uncover the factors that drive the supply and demand of rental housing stock. Focus is given to the various options of rental housing available, who supplies this housing, and how individuals access it. In addition, focus is given to how housing preferences of mine employees drive the demand for rental housing. Lastly, the primary research question aims to uncover the methods used to connect suppliers and customers of rental housing.

The secondary research questions aim to provide a broader understanding of the rental housing market from an organisational and entrepreneurial perspective, particularly the housing options offered by platinum mining companies, and how mine employees access these options. Further, the secondary research questions aim to uncover what factors influence entrepreneurial rental housing providers to enter this market. Lastly, the secondary research questions aim to define the required design specifications for an inclusive business model to develop rental housing stock.

1.3 RESEARCH ASSUMPTIONS

The case study research method relies on the analysis of data to build theories (Eisenhardt, 1989; Yin, 2014); it is assumed that the selected case study will provide sufficient rich data to build theories. In addition, it was assumed that for this research, the selected case study was representative of a community in the platinum mining sector with complex company-community relations. A key data source for this research was interviews of rental housing providers, migrant mine workers, and company group housing managers. An assumption was made that the data collected from the interviewees were honest and accurate. To mitigate against the risk of inaccurate data, interviewees were assured of their anonymity and were interviewed in their native languages. Lastly, it is assumed that the findings from this research are transferable to other areas in the platinum mining sector.

1.4 RESEARCH ETHICS

This research was conducted in an ethical and transparent manner. Careful consideration was given to ensure that those involved in the research were not disadvantaged in any manner. Most of the interviews were conducted in rural villages and township communities in the Amandelbult area. I requested permission to enter the premises of potential interviewees. Further, prior to requesting to interview study respondents, I introduced myself as a researcher and produced my ethical clearance letter. Interviewees were informed of the purpose of the study and informed consent was requested before the recording of interviews. Interviewees were also informed that the process was voluntary and that they could withdraw at any time. During the data collection phase of the research, I remained conscious of the fact that I am a male researcher from a middle-income background. In my interactions with study respondents, I ensured that I did not allow my position to dominate interactions with study respondents. Company approval was obtained to use AAP's Amandelbult mining operation as a case study area. As a former employee of AAP, I minimised researcher bias by collecting data from sources not affiliated to AAP. This data was used to corroborate and test the findings of this research. I received ethical clearance from the University of Cape Town Faculty of Commerce Ethics in Research committee to proceed with this research.

2 LITERATURE REVIEW

The literature review consists of four sections. The first section discusses the grand challenge of growing informal settlements in urban and peri-urban environments in emerging market economies, while the second section discusses the challenge of informal settlements with a focus on the South African mining sector. In this section, a historical review of the South African mining sector and the housing policies of mining companies is given.

The third section reviews the practice of community development facilitated by mining companies. Focus is placed on the domains of corporate social responsibility (CSR) and cross-sector partnerships and their application in addressing development challenges in communities affected by mining. Reference is made to initiatives implemented by mining companies to address housing challenges in the platinum mining sector. The last section considers CC business models' adaptation as an inclusive business models.

2.1 THE GRAND CHALLENGE OF INFORMAL SETTLEMENTS

Grand challenges such as informal settlements in urban and peri-urban developing countries are receiving attention from organisational scholars (Ferraro et al., 2015). Scholars continue to ask questions about why these grand challenges remain unresolved after a multitude of interventions from various organisations to address them. This section discusses the purposive action of organisations attempting to address grand challenges. Focus is given to interventions by mining companies that have facilitated regional planning and development for housing and land use in areas where they operate (Morrison et al., 2012).

Grand challenges are complex, entailing many interactions and associations, emergent understandings, and nonlinear dynamics (Ferraro et al., 2015). Further, grand challenges tend to be multi-disciplinary and cut across boundaries. Informal settlements are a grand challenge in need of bold ideas to resolve, just like other grand challenges such as climate change, water scarcity, poverty alleviation, and safeguarding human rights. To date, grand challenges have resisted many interventions that seek to resolve them through quick fixes. Informal settlements are an example of a grand challenge that has resisted quick fixes, such as building houses without considering the spatial planning.

South Africa is an example of a country where massive housing projects have been implemented to eradicate informal settlements, however many of these new housing settlements are in areas far away from where people work. This results in people having to travel long distances to work. Such interventions to address grand challenges often end up causing unintended consequences. In this example, the unintended consequence is people selling their new homes and building new informal settlements so that they can be close their places of work. Yet South Africa is a unique example due its history of apartheid spatial planning, which settled the majority black population in the outskirts of the country's cities and towns.

Informal settlements continue to affect a large sector of the world population living in emerging markets. Africa is home to many emerging market economies facing massive housing challenges (Pieterse, 2006). These housing challenges are most pronounced in urban and peri-urban settlements, as cities and areas with high economic activity continue to attract large numbers of migrant workers from rural areas (Parnell & Pieterse, 2010). This migratory movement is mostly driven by the prospect of better economic opportunities in urban areas. Further, the attainment of independence and later democracy in most African states led to the easing of restrictions that confined the majority population to rural areas. The African continent is also bestowed with large amounts of mineral resources, which have driven economic growth on the continent thanks to the increased demand for commodities from major emerging economies such as China and India (Yakovleva, 2015).

The above economic factors continue to be the main drivers behind the migration of workers from rural to urban areas, however the cities and areas of high economic activity often lack the necessary infrastructure to provide housing and services for migrant workers. This lack of capacity, as well as budget limitations and poor regional planning, all contribute to the infrastructure challenges facing cities (Pieterse, 2006). Further, many African urban areas are still dealing with the legacy of colonial planning policies that only catered for small sectors of the population. Extant literature on urban development challenges in Africa also focusses on interventions to address these constraints. These interventions are facilitated at an institutional level, either by governments or developmental agencies.

One of the most recognisable frameworks for addressing grand challenges is the United Nations' Millennium Development Goals (MDGs). The MDGs are the world's time-bound and quantified targets for addressing extreme poverty, hunger, disease, lack of adequate shelter, and exclusion, while promoting gender equality, education, and environmental sustainability (Ferraro et al., 2015). The MDGs often serve as a guideline to organisational actors attempting to address grand challenges. Organisational literature on institutions tackling grand challenges often follows a case study approach to understand the worldviews and strategies utilised by these organisations.

There is also broad literature on the role of mining companies facilitating community development through corporate-community investment (Hamann, 2004; Kemp & Owen, 2013; Kemp, Owen, & Graaff, 2012). Notable studies have examined the development agenda followed by mining companies in response to the institutional void apparent in many regional communities (Kemp, 2010; Newenham-Kahindi, 2011). These companies are increasingly providing regional planning and service delivery where government activity is weak and community capacity is low. These interventions are often in rural mining communities where there is limited capacity in local government structures.

2.2 MIGRANT LABOUR AND HOUSING IN THE SOUTH AFRICAN MINING SECTOR

The South African mining sector was established following the discovery of diamonds in Kimberly in 1867 and gold on the Witwatersrand in 1886. These industries were established on the back of race-based, hierarchical distinctions between indigenous peoples and the colonisers (Hamann & Bertels, forthcoming). Further discovery of platinum in the Rustenburg region in 1923 cemented the economic importance of mining in the South African economy. Following the discovery of these initial mineral deposits, technological advances saw the discovery of additional deposits of diamonds, gold and platinum. These additional deposits made South Africa the leading producer of mineral commodities.

In addition, owing to its favourable geological setting, there were additional discoveries of other commodities such as iron ore, coal, copper, zinc, and heavy mineral sands. After the discovery of all these mineral commodities, the South African mining sector grew to be a world leader in the mining and extraction of these commodities (Demissie, 1998). Most of South Africa's diamond, gold and platinum deposits are located deep below the earth's surface. The deep-seated nature of these mineral deposits is a result of the geological setting and geographical terrain of the country.

The deep-seated nature of these mineral deposits presents mining and extraction challenges, because they cannot be accessed through open pit mining methods. Open cast mining is a mining method that recovers mineral ore by digging from the earth's surface without sinking tunnels underground. Open pit mining methods are highly mechanised and use minimal physical labour in the mining process. With limited opportunities for open cast mining, these mineral deposits are accessed through underground mining methods. Further, the geometry of most diamond, gold and platinum deposits in South Africa is structurally complex. This structural complexity is characterised by the presence of unstable rock formations, water and seismic events in the underground mining environment. Because of these geologically induced complexities, there is limited opportunity to fully use machinery in the extraction of these commodities, therefore the mining and extraction of these commodities can only be effectively conducted through physical labour. In the history of the South African mining sector, this labour was provided by ethnic black Africans and continues to be provided by black Africans to this day (Demissie, 1998; Hunter, 1992).

Through the migrant labour system, ethnic black Africans were sourced from various regions in Southern Africa - mostly from the homelands in South Africa and the neighbouring states of Lesotho, Mozambique, Swaziland, Zambia, Zimbabwe, Tanzania and Malawi (Bezuidenhout & Buhlungu, 2011; Crush & James, 1991). It must be noted that at the height of colonial rule in Southern Africa, the African people in these states lost vast amounts of land through dispossession by white imperialist colonial governments (Macmillan, 2012) from the European countries of England and Portugal. Portugal was the colonial power in Mozambique and England the colonial power in South Africa, Swaziland, Lesotho, Malawi, Zimbabwe, Botswana, and Zambia. In South Africa, prior to English colonial rule, Africans had already been dispossessed of vast amounts of land by Afrikaner settlers.

Following these phases of land dispossession, punitive legislation was introduced by the colonial governments to force Africans to supply cheap labour to the mining sector (Macmillan, 2012). These punitive legislative measures were mostly the introduction of taxes that forced Africans to pay taxes for either their households or livestock (Crush & James, 1991). Considering that most African communities grew crops and kept livestock as their main economic activity, the paying of taxes was not a component of their system of life.

Consequently, the introduction of these taxes forced mostly African men into the wage labour market, and the South African mining sector was the biggest beneficiary. However, it was not just in South Africa where a mining sector was being established; mineral deposits were also discovered in other Southern African states, although not to the same level as South Africa. Together, these colonial governments, in conjunction with new formed companies, exploited cheap African labour with devastating consequences for the African people (Demissie, 1998).

Owing to South Africa having a rapidly growing mining sector, it was within its borders that the disfranchisement of Africans was fast-tracked the most to ensure a cheap supply of black African labour. The Chamber of Mines was established after the discovery of gold on the Witwatersrand in 1886, to represent the interests of the mining companies (Bezuidenhout & Buhlungu, 2011). The Chamber was also directly involved in encouraging government officials to implement measures that would ensure the supply of cheap labour (Crush & James, 1991).

These measures included the payment of chiefs to provide workers from their villages and the introduction of taxes to force Africans into labour in the mines. In 1902, the Chamber of Mines established the Witwatersrand Native Labour Association (WENELA), a dedicated organisation that built and managed the migrant labour system (Bezuidenhout & Buhlungu, 2011). Following the introduction of these punitive measures by the colonial governments in liaison with mining companies, black African migrant mine workers were forced into providing cheap labour. These mine workers were housed in single sex compounds or hostels next to the mining operations (Hunter, 1992), where the living conditions were extremely poor. Further, black African migrant workers were restricted to the compounds and could not leave the mine property area.

Legislation that controlled the movement of Africans had already been introduced during this time. Further, spatial planning of the colonial governments developed segregated settlements for the main racial groups, i.e. Natives, Europeans and Asians (Crush, 1994). After the implementation of apartheid in 1948, the racial groups were divided into Whites, Natives (Blacks), Indians and Coloureds (Hunter, 1992).

Pass laws were strictly enforced to control the movement of black Africans in the mining towns, requiring Africans to carry documents that indicated they had a contract of employment and were permitted to reside in a specific residential area.

Non-compliance with these regulations meant that Africans without these documents would be deported back to the homelands. Regulation that controlled the movement of Africans was further intensified following the drafting into law of apartheid in 1948 after the National Party came into power (Demissie, 1998). This meant that black African migrants were further isolated from the communities where they worked, and were confined to life exclusively in the compounds.

The policy of recruiting labour from rural areas, homelands and neighbouring states continued under apartheid. The previously established organisation that managed the migrant labour system was renamed from WENELA to The Employment Bureau of Africa (TEBA) in 1977. Upon the establishment of TEBA, the homeland or Bantustan system was fully implemented under apartheid. Africans were segregated according to their tribal group and could only hold citizenship in their homeland state. When outside their homeland, Africans had to carry documents in South Africa or they would be considered illegal immigrants (Hunter, 1992).

In South Africa, the main homelands were Transkei and Ciskei for the Xhosa people, Bophuthatswana for Tswana people, Zululand for Zulu people, Lebowa for the Pedi people, Qwaqwa for the Sotho people and Venda for the Venda people. TEBA had recruitment officers in these various homeland states; recruitment for the South African mining sector mostly took place in Transkei and Bophuthatswana, and the neighbouring states of Lesotho and Swaziland. These recruitment officers enrolled workers and facilitated their transportation to the mines. Often the workers were contracted for periods that ranged for between six and eight months (Crush & James, 1991), after which they would need to return to their homelands.

In the compounds, workers were separated according to their tribal groups. The compounds were generally large buildings where mine workers slept in bunk beds in overcrowded conditions (Demissie, 1998). There was limited privacy for mine workers in these compounds, bathing areas were shared and food was provided in large canteens. Surveillance and control was implemented strictly by a police force that worked for mining companies. Due to these living conditions, the compounds became increasingly unpopular amongst migrant mine workers. As early as the formation of these compounds, mine workers started to challenge the poor living conditions and strict control of their movements.

Mine workers started organising themselves by forming trade unions that called for improved living conditions and better wages (Crush, 1989), however this resistance by mine workers was opposed by the mining companies and authorities, and did not result in changes in the migrant labour system. After the formation of the African National Congress (ANC) in 1912, it took a several of years before worker agency and trade unionism started to have an impact on improving working and living conditions. In 1941, the ANC helped to organise a mine workers conference that led to the foundation of the African Mine Workers Union (Buhlungu & Bezuidenhout, 2008). The union organised several trikes that called again for improved living and working conditions for mine workers (Crush, 1989), however the mining companies and government officials also opposed these. Following this period, the anti-apartheid resistance movement intensified in South Africa after the Soweto student uprisings in 1976 (Demissie, 1998).

The mining sector became a hot bed for political activity and the struggle against apartheid. During this intensified struggle period, the National Union of Mine workers (NUM) was legalised in 1982 (Crush, 1989). The ANC worked together with the NUM to recruit workers in the compounds for anti-apartheid rallies, while the NUM also organised thousands of mine workers to strike for better working and living conditions (Crush, 1989). These collective actions by the ANC and NUM played a critical role in intensifying the struggle against apartheid. Further, these combined actions eventually led to the improvement of living conditions in the compounds. Considering that compounds were a symbol of colonialism and apartheid, the liberation movement continued to use them as a base for recruiting and mobilising.

In 1985, the Congress of South African Trade Unions (COSATU) was launched as a federation of trade unions that included the NUM (Buhlungu & Bezuidenhout, 2008, p. 265). In 1990, after the unbanning of liberation movements in South Africa, the ANC, COSATU and the South African Communist Party (SACP) formed the tripartite alliance (Buhlungu & Bezuidenhout, 2008), intensifying the struggle against apartheid. Towards the fall of apartheid in the late 1980s and beginning of the 1990s, the demand for improved living conditions moved beyond the compounds. The NUM demanded that mine workers be allowed to seek alternative housing in communities close to the mining operations.

The apartheid laws that controlled the movement of Africans started to ease and mining companies also gave concessions, starting to allow mine workers to live in alternative housing (Laburn-Peart, 1990). However, considering that the mining companies had historically provided housing and food for mine workers, mine workers who did not live in the hostel requested housing assistance from the companies. It was during this period in the early 1990s that saw the NUM call for a Living Out Allowance (LOA) for mine employees who lived outside the compounds (Crush, 1992). (The LOA was a benefit that already existed for mine employees, but was preserved for white employees only. Most of these white employees were managers and skilled employees who lived in urban areas in the mining towns.)

Following the NUM's increased bargaining leverage, the trade union negotiated for the LOA to be granted to all mine workers. The mining companies conceded and started paying the LOA selectively to firstly skilled black mine workers. In successive wage negotiations with the mining companies, the NUM continued to call for a LOA for all mine workers. These negotiations took place in the transition period to democracy between 1990 and 1994. During this period, it had become evident that the apartheid state was collapsing; repressive apartheid laws were being abandoned and mine workers started moving to settlements around mining operations. No more legal considerations prevented the mining companies from paying a LOA, which paved the way for its wide scale introduction.

The LOA became a negotiated benefit following the democratic dispensation in 1994 (Crush, 1992), which was incorporated into employees' wages by most gold mining companies. The Chamber of Mines negotiates with the NUM on behalf of all the biggest gold mining companies, however in the platinum mining sector, the Chamber of Mines does not represent mining companies in wage negotiations – the mining companies negotiate individually with trade unions. The LOA was only introduced in 1996 by the platinum mining companies (Bezuidenhout & Buhlungu, 2011). It became clear after the introduction of the LOA that the amount was not enough to pay for decent rental housing however. Even after the gains made by the NUM, the wages of migrant mine workers were still very low compared to other sectors in the economy.

The only areas where migrant mine workers could possibly afford to rent housing was in local black townships, however most of these townships were located far away from mining operations because of apartheid spatial planning.

Further, these townships lacked capacity and were not planned to provide rental housing - most households only had sufficient space to accommodate family members. These limited rental housing options left migrant mine workers with a choice of either renting or building an informal structure in an informal settlement (Demissie, 1998), or renting backroom shacks or rooms in local townships. Following the introduction of the LOA, informal settlements grew quickly around mining operations.

Extant literature attributes this growth of informal settlements to the introduction of the LOA (Bezuidenhout & Buhlungu, 2015; Chinguno, 2013), and also claims that migrant mine workers were motivated to increase their earnings by accessing the LOA. However, the literature does not detail how limited rental housing stock influenced the growth of informal settlements; if there were sufficient affordable rental housing around the mining towns, migrant mine workers would have rented housing there. This argument in the literature is supported by the fact that migrant mine workers do not live in informal settlements when they are at home, therefore, they would not voluntarily move out of compounds to live in worse conditions in informal settlements. Lastly, the value of the LOA was not sufficient to increase the earnings of migrant mine workers; it likely only covered accommodation and transport expenses.

The above indicates that soon after introduction of the LOA there were unintended consequences, the most prominent of which was migrant mine workers exiting the compounds to go live in informal settlements. The primary objective of the LOA, according to the NUM and mine workers, was to give migrant mine workers a choice of housing options, however the resulting effects of the LOA did not provide more housing options. On the other hand, it can also be argued that the introduction of the LOA released mining companies from the responsibility of providing housing for their employees (Chinguno, 2013); the mining companies could reduce the number of employees living in compounds without having to invest in building alternative houses for them.

Further, after 1994, the new democratic government implemented the Reconstruction and Development Programme (RDP) to improve the lives of the previously disadvantaged (Bezuidenhout & Buhlungu, 2015). A key component of the RDP was the building of houses for the majority black population.

The building of these houses also occurred in mining towns, and mine workers benefited to a certain extent. These programmes of the new democratic state would further provide relief for mining companies to providing housing for employees. Further, sanctions were lifted after South Africa became a democracy, meaning that mining companies could now raise capital in international markets to increase production. The above favourable conditions resulted in South African mining companies focusing on maximising shareholder value; many became increasingly international after the lifting of sanctions, acquiring mining properties in other countries.

From 1994 to 2002 there was no major change in the housing strategy of the South African mining companies; the two main housing options for mine workers during this period were living in the hostels or accessing the LOA and securing private housing. It was only after the introduction of the Mineral and Petroleum Resources Development Act 28 of 2002 (MPRDA) that mining companies started facilitating home ownership for mine workers. The objective of the MPRDA is to facilitate meaningful participation of previously disadvantaged South Africans in the mining and mineral industry (DMR, 2010). Provided for within this Act is the Mining Charter, which is an instrument to effect the transformation of specific targets. These targets include ownership, enterprise development, beneficiation, employment equity, human resource development, mine community development, housing and living conditions, sustainable development and reporting.

With respect to housing and living conditions, the Mining Charter seeks to convert or upgrade hostels or compounds into family units, attain an occupancy rate of one person per room, and facilitate home ownership for all mine employees. Breach of the Mining Charter can result in the cancelation or suspension of a mining company's mining rights. The custodian of the Act is the Department of Mineral Resources (DMR), which regularly reviews compliance to the Mining Charter. Following the introduction of the MPRDA, mining companies shifted their housing strategies to comply with the requirements of the Act. Depending on a company's specific circumstances, housing strategies largely focussed on converting hostels to single accommodation and family units. Home ownership schemes were also introduced to assist employees to purchase homes.

Recent studies have also considered the consequences of integrating migrant mine workers into local communities (Mnwana, 2015). These studies have focussed on the platinum mining sector following the industrial action that occurred from 2012 to 2014.

Scholars argue that the integration of migrant mine workers into local communities has resulted in unintended consequences, such as the workers establishing a second family in the mining towns (Chinguno, 2013). The resulting effect of maintaining two families is an over-stretched budget, with workers having to take loans out to make up for the shortfall in their budgets. These loans are often offered by dubious loan sharks who charge high interest rates that make repayment difficult.

Evidently, the housing of mine employees in the South African mining sector has a disturbing and complex history. Of concern is that even currently, the provision of adequate housing for mine employees, especially migrant mine workers, remains a challenge. This housing challenge, together with facilitating community development in affected communities, is receiving attention from mining companies. The following section of the literature review considers the practice of community development facilitated by mining companies.

2.3 COMMUNITY DEVELOPMENT FACILITATED BY MINING COMPANIES

The preceding section illustrated that before South Africa became a constitutional democracy, mining companies invested little in the welfare of mine employees and the development of communities around their operations; reforms only began to be introduced towards the end of the apartheid system in the late 1980s (Kloppers & Plessis, 2008). These reforms were mainly driven by political pressure from liberation movements and the international community.

After South Africa became a constitutional democracy in 1994, a review of mineral legislation was undertaken in two phases. The first phase occurred post-1994 and saw the implementation of a consultation process between industry, labour and government (Sorensen, 2011). This consultation process sought to bring social and economic transformation to the South African mining sector and improve the dismal safety record of the industry. During this consultation period, mining companies started to implement what were the first corporate social investment (CSI) initiatives to facilitate development in affected communities.

The second phase of mineral legislation occurred after the introduction of the MPRDA in 2002. This piece of legislation introduced ambitious targets that aimed to significantly transform the South African mining sector.

The practice of CSR and community development gained traction after the introduction of this Act. The following section discusses how community development evolved after 1994.

Post-1994 period

When South Africa became a constitutional democracy in 1994, the new democratic government started reviewing mineral legislation to transform the South African mining sector, this process started with the circulation of a discussion document by the minerals and policy energy centre in parliament (Sorensen, 2011, p. 173). This discussion document was circulated during the period of the Government of National Unity between 1994 and 1996. The consultation process involved labour, industry and government, after which a green paper was drawn up for public discussion in 1998. Thereafter, a white paper was drawn up for parliamentary consideration. Themes in the white paper included business climate and mineral development, participation in ownership and management by HDSAs, socioeconomic issues, environmental management, regional co-operation, and governance (Capps, 2012).

These early legislative reforms saw mining companies implement community development initiatives under the frameworks of ‘corporate social investment’ (CSI) and ‘corporate social responsibility’ (CSR). Primarily, these initiatives started with mining companies making charitable donations to good causes in communities where they operated (Hamann, 2004). These donations generally focused on education or health initiatives in neighbouring communities, which were administered by mine managers or human resources managers without dedicated policies, budgets, or organisational structures (Hamann, 2004, p. 283). At their inception, CSI initiatives were not aligned with companies’ business plans or strategies.

During the post-apartheid period, South Africa was in transition and the country was becoming more integrated with the international community. Further, the new South African government had implemented the RDP programme to empower black people who had previously been excluded from the economy during apartheid. Looking back, the post-1994 period presented an environment that called for national unity and nation building in South Africa; even though legislation had not been passed that compelled mining companies to be socially responsible, there was an expectation from civil society for increased social responsiveness by mining companies.

Further, after South Africa became a constitutional democracy, the sanctions that had been instituted during apartheid were lifted, which paved the way for the integration of the South African mining sector with the global investment community. There was a corresponding increase in international investment in the South African mining sector, and some mining companies got secondary listings in foreign dominions (Hamann, 2004). Considering that other international mining companies had started implementing community development initiatives in areas where they operated (Kemp, 2009), there was an expectation for the South African mining companies to do the same. In the international mining sector, there was also an increase in regulations that required mining companies to adhere to environmental sustainable mining and responsible corporate governance. South African mining companies that had majority shareholders and secondary listings in countries with more stringent regulations thus had to restructure their operations to meet these requirements.

In the international mining sector, academic, political and regulatory expectations were the initial drivers behind the community development initiatives implemented by mining companies. Looking into the scholarly expectations, the mining sector has attracted academic interest due to its association with negative impacts such as environmental degradation and exploitation (Capps & Mwanza, 2015; Chinguno, 2013; Farrell et al., 2012). In South Africa, scholars have focussed on company-community relations and struggles over access to resources such as land and water. Political and regulatory expectations have come from government, NGOs, and regulatory bodies, such as the United Nations' sustainable development goals (United Nations, 2015), which aim to eradicate grand challenges such as poverty and climate change. To date, the sustainability strategies of mining companies have been influenced by these sustainable development goals.

At its inception, community development was largely practiced under the framework of building community relations in areas where mining companies operated (Kemp & Owen, 2013). Considering that mining operations are often in remote locations where there are development challenges, there are business motivations for mining companies to build relations with local communities. To date, extant literature has largely focussed on how mining companies build community relations and manage tensions with affected communities (Muthuri, 2007; Newenham-Kahindi, 2011). Studies showcase that most international mining companies have dedicated departments that work in building community relations (Kemp, 2010).

In the international mining sector, building community relations is practiced under the frameworks of CSR and community development. Considering other frameworks such the emergence of CSI in the South African mining sector, there are overlaps between the work of community development, CSR and CSI. These overlaps are recognisable mainly by similar drivers behind organisational responses from mining companies to become more socially responsive. These drivers are mainly increasing academic, political and regulatory expectations for mining companies to foster development in affected communities around mining operations.

The mining sector remains a contested space due to various factors such as environmental degradation, conflict with affected communities, and resource nationalism from host governments, thus the building of community relations has become imperative for most global mining companies. Recent studies indicate that there is a need for dedicated departments in mining companies that will manage tensions and build relations with affected communities (Farrell et al., 2012), however these studies also noted that these departments are often not as well-resourced as other departments such as finance and engineering (Kemp, 2009). Further, professionals that work within these departments are often not trained as community development practitioners, but rather have backgrounds in areas such as finance or engineering. This limitation of resources within community development departments limits their impact and the institutionalisation of the field.

Based on extant literature, community development as a practice has not been fully institutionalised yet, i.e. the practice has not yet been fully integrated into the operational plans of mining companies. In addition, the services of community development practitioners are employed on a 'use as you need' basis, and are often only utilised when there are urgent matters such as tensions with local communities.

Based on the above analysis, there are similarities in how the practice of community development has evolved in both the international and the South African mining sectors. What is evident is that academic, political, and regulatory expectations have been the drivers behind mining companies adopting community development initiatives. The following section discusses how community development has evolved after introduction of the MPRDA in South Africa.

Post-Mineral and Petroleum Resources and Development Act (MPRDA) period

The introduction of the MPRDA was a watershed moment for the South African mining sector, as the Act contains legislation that intends to transform the mining sector and align it to international standards of good governance. The most important provision of this Act is the return of all mineral rights to the custodianship of the state for redistribution (Sorensen, 2011, p. 174). This was implemented by cancelling old order mining rights and introducing a new application process to convert older mining rights into new order rights. The conversion of older mining rights was dependent on satisfying transformation conditions contained within the MPRDA.

These conditions include increasing ownership amongst HDSAs, enterprise development, beneficiation, employment equity, human resource development, mine community development, improving housing and living conditions, sustainable development and reporting (DMR, 2010). The above conditions are listed as milestones for mining companies to achieve in the Mining Charter section contained within the MPRDA.

Following the introduction of the MPRDA, scholars have largely focussed on the mining companies' organisational responses to this Act, with particular emphasis on how the domain of CSR has developed (Kloppers & Plessis, 2008). As with the period before the introduction of the MPRDA Act, community development continued to be practiced under the rubric of CSR after the introduction of the Act. Coincidentally, the introduction of the MPRDA occurred at a time when there was a mineral commodities price boom.

During this period, mineral commodities such as platinum, iron ore and copper were in high demand from developing economies. This mineral commodity price boom brought with it greater expectations for mining companies to invest profits in host countries and affected communities. In South Africa, the platinum mining sector grew exponentially during this mineral commodity price boom. Because of this growth, platinum mining companies expanded their operations by developing additional mine shafts and conducting exploration activities. In some cases, this expansion meant affected communities around mining operations had to be relocated. Considering the tortuous history of the South African mining sector and its association with exploitation, efforts to relocate communities often resulted in conflict, which have been the subject of numerous studies by organisational scholars (Farrell et al., 2012; Mswana, 2015).

Recent studies have largely focussed on tensions between affected communities and platinum mining companies. In the Rustenburg platinum mining area, for instance, scholars have documented the complex relations between communities, mining companies and municipalities (Mnwana, 2014). These relationships are mainly driven by competition for limited resources, namely land and water. Land is regarded as a strategic resource by traditional communities around mining operations; traditional communities such as the Royal Bafokeng nation and Bakgatla-Ba-Kgafela have strategic access to land that is in demand by mining companies and municipalities (Capps & Mnwana, 2015).

There are cases when mining companies need to expand their mining operations into land owned by traditional communities, which often results in disputes over compensation and the sharing of resources (Farrell et al., 2012). On the other hand, municipalities around platinum mining operations have strained relationships due to disputes over accessing land for development purposes (Hamann, 2004, p. 286). As per the earlier findings of this literature review, access to land is one of the factors that has influenced the housing patterns of mine employees around mining operations.

More recently, organisational scholars have also focused on mining companies' compliance with the MPRDA, following the labour unrest that occurred in the platinum mining sector between 2012 and 2014 (Chinguno, 2013). Additional studies have focussed on mining companies' compliance to the MPRDA requirements for the provision of decent housing for employees (Bezuidenhout & Buhlungu, 2015; Ntema et al., 2017).

Based on the above analysis and extant literature, the period after the introduction of the MPRDA saw an increase in expectations from various stakeholders in the South African mining sector, which largely influenced the current practices of community development facilitated by mining companies. The following section discusses community development initiatives, including housing development and regional planning.

Community development, regional planning and housing

In the preceding sections, a scholarly overview of the practice of community development and CSR in the mining sector was given. This section focusses on community development initiatives that include regional planning and housing developments in areas where mining companies operate. Internationally and in South Africa, mining operations are often located in remote areas with infrastructure challenges such as a lack of housing and access to basic services (Owen & Kemp, 2012). As a result, mining companies often need to provide additional regional planning and housing development capacity to provide basic services for communities. The role of mining companies in providing regional planning and housing development has been the subject of empirical studies (Morrison et al., 2012), which have focussed on the role that mining companies play in regional planning and development.

Further, extant literature has also focussed on the growing role played by mining companies and local government in facilitating development and addressing the negative impacts associated with mining (Cheshire, Everingham, & Lawrence, 2014). From an international mining perspective, and considering Australia as a case, mining companies have played various roles in facilitating regional planning and housing development. Mining operations in Australia are often located in regions far away from urban areas, thus mining companies in that country historically established mining towns in the regions where the mining operations were located (Cheshire et al., 2014). Local indigenous communities came to rely on these mining towns for business and job opportunities, however over the past two decades, the mining companies in Australia have moved away from establishing and managing mining towns.

Recent studies indicate that mining companies in Australia are increasingly reluctant to invest in permanent infrastructure in remote locations (Cheshire, 2010), in large part due to the costs associated with maintaining mining towns. As a result, the responsibility for providing development and services has reverted to local government (Morrison et al., 2012), with mining companies introducing fly-in fly-out (FIFO) and drive-in drive-out (DIDO) commuting arrangements for mine employees (Cheshire, 2010). Under these commuting arrangements, mine employees spend periods of time at the mines and at home in a rotational cycle, commuting by air or road to and from their home bases (Morrison et al., 2012).

The mining companies in South Africa followed a similar strategy to the Australian mining companies by establishing mining towns. Between 1950 and 1980, mine employees were primarily housed in residential areas that were established by the mining companies in close proximity to the mining operations (Ntema et al., 2017). As with Australia, mining companies in South Africa withdrew from establishing mining towns after the 1980s, and transferred the administration of the existing properties to households and local government (Ntema et al., 2017, p. 1). However, after South Africa became a constitutional democracy in 1994, the mining companies once again began promoting infrastructure development around their mining operations by facilitating home ownership for mine employees. This promotion of home ownership is mainly attributed to the need to comply with MPRDA legislation, which requires home ownership for mine employees.

Consequently, mining companies in South Africa have become increasingly involved in regional planning and housing development. Extant literature on this topic has largely focussed on partnerships between mining companies and local government (Hamann, 2004, p. 287), as well as how tensions have manifested between mining companies, local government, and traditional communities over access to resources for development.

The following section of the literature review discusses the sharing economy and CC business models. Focus is given to CC business models in the rental accommodation market.

2.4 INCLUSIVE BUSINESS MODELS AND THE RENTAL HOUSING MARKET

This section discusses the sharing economy and emergent CC business models that present an opportunity to be adapted and replicated as inclusive business models. The section provides a review of scholarly literature on the sharing economy and CC business models. Focus is given to CC business models that provide or facilitate rental accommodation. This section starts by discussing the phenomena of the sharing economy in relation to the rental housing market in the platinum mining sector. Secondly, the section then gives an overview of similarities between a CC business model that provides rental accommodation and the local rental housing market in the platinum mining sector. Lastly, literature on potential stakeholder impacts of CC business models is discussed.

In previous sections of this literature review, it was discussed that reform in the mining sector resulted in mine employees exiting hostels to secure their own private accommodation. In most cases, mine employees that exited the hostels secured rental housing in local townships or villages around mining operations. Most of this rental housing is often backroom rental units. Alternatively, mine employees rent accommodation space in informal settlements or build their own informal structures.

Back room rental accommodation is often located in the backyard of existing households and mine employees often cohabit with their rental housing providers. In some cases, rental housing units are built as standalone units and are not part of a main residence. This practice of renting out excess accommodation space in the form of back rooms indicates an emergence of elements of the sharing economy. Such sharing is mostly facilitated by home owners in local townships and villages that have excess housing capacity. This excess housing capacity is often rented out to migrant mine workers who often require long-term rental housing for the period mining companies employ them.

Sharing as an act has been practiced by society for many years; the sharing of goods or products with family members, friends or community members can be considered a normal practice. According to Belk (2007), sharing involves the act and process of distributing what is ours to others for their use, or the act and process of receiving or taking something from others for our use. Recent developments have seen a rise in the sharing economy and CC business models as new sharing paradigms. The sharing economy has seen the upsurge of businesses such as Uber and Airbnb, characterised by the coordination of the use of resources such as living space, manpower, or vehicles, commonly through web-based information technologies (Mair & Reischauer, 2016). Businesses such as Uber and Airbnb fall under the umbrella of CC-based business models, which involve coordinating the acquisition and distribution of a resource for a fee or other compensation (Belk, 2014).

In considering the emergent housing patterns in the platinum mining sector, some similarities can be drawn from the current practice of letting out back rooms and the CC business model of Airbnb. Airbnb is a CC business model based on an online platform through which ordinary people rent out their excess housing space as accommodation for tourists (Guttentag, 2013; Henten & Windekilde, 2016).

The major difference is that Airbnb caters to tourists over short periods of time, whereas rooms in RDP houses and local communities are rented out over longer periods of time. Secondly, with Airbnb, payment and contract transactions are facilitated through online platforms, whereas transactions between owners of rooms and migrant mine workers are facilitated mostly through verbal agreements and cash payments. Such similarities between the Airbnb business model and backroom rental housing market provide a business case that CC business models can be adapted for the low-income rental housing market in the platinum mining sector.

Scholars have also suggested that the sharing economy and CC business models should not be confined to the domains of peer to peer sharing only; rather, the sharing economy can be explored as an opportunity to be researched and incorporated into the existing framework of sustainability (Heinrichs, 2013). Taking into consideration the magnitude of challenges facing the platinum mining sector, the sharing economy and CC business models can be explored as an alternative approach to facilitating development. In as much as the sharing economy and CC business models are creating alternative livelihoods and sources of income, there is also a growing scholarly interest in the resulting stakeholder impacts of such business models (Dreyer et al., forthcoming).

As a relatively new phenomenon, the sharing economy has attracted a growing interest from academic researchers. To date, scholars have focussed on framing the sharing economy and analysing its discourse. The sharing economy has been framed by scholars under various frameworks such as a new sustainable form of consumption, neoliberal form of capitalism, and disruptive innovation (Heinrichs, 2013; Martin, 2016). As a pathway to sustainable consumption, the sharing economy is considered as an opportunity to promote sustainable forms of consumption.

Current sharing economy services such as Uber is an example of CC business models that promote sustainable consumption. In the case of Uber, the sustainability aspect of the business is reducing the carbon footprint of commuters by reducing the use of their own vehicles or travelling in groups. In contrast, scholars have also criticised the sharing economy for advancing new forms of capitalism (Belk, 2014; Martin, 2016). Scholars argue that the sharing economy and CC business models are not based on true sharing, but rather modified forms of sharing that promote profiting through facilitating the sharing of goods. Considering that CC business models such as Uber and Airbnb require access to resources such as a car, house, internet, and digital devices; scholars have also argued that CC business models have high barriers of entry (Malhotra & Alstyne, 2014).

As a result, it is often individuals with access to resources that benefit the most from these businesses. Such high barriers to entry have raised concerns that CC business models may face limitations when transferred to low resource areas such as developing countries.

To date, studies have largely focussed on Uber and Airbnb as cases of CC business models. Uber and Airbnb are the two most prominent CC enterprises. Consequently, there has been an increase in scholarly interest on the impact of these two enterprises on stakeholders (Malhotra & Alstyne, 2014; Martin, 2016). Recent studies have focussed on the stakeholder impacts of CC business models in an emerging economy context (Dreyer et al., forthcoming). Scholars argue that socio-economic context plays an important role in stakeholder impacts of CC business models. Stakeholder impacts of enterprises such as Uber and Airbnb can be either positive or negative depending on the socio-economic context. To date, Uber and Airbnb have been introduced in both developed and emerging economic contexts, stakeholder impacts have been mostly positive in developed economies. In emerging market economies where there is often unequal distribution of resources, CC business models have been associated with negative impacts on stakeholders (Dreyer et al., forthcoming, p. 20).

To date, academic literature on the sharing economy has largely focussed on developed economy contexts. Few studies have focussed on the sharing economy in emerging market economies. Considering that the sharing economy is being considered as an alternative approach to facilitating development, academic studies that focus on emerging economy contexts can provide knowledge on the feasibility of such an approach. In addition, academic studies should also focus on how the sharing economy and CC business models can be adapted for low resource areas such as in emerging economies. In the case of Airbnb which holds potential as a CC business model that can be adapted for the low-income rental housing market, there is an opportunity for further research on how its business model can be adapted.

With the current challenge of informal settlements and segregated nature of communities around mining operations, CC business models could help integrate migrant mine workers and local indigenous communities to build more resilient and sustainable communities. Depending on the context, CC business models may present benefits or negative impacts for stakeholders involved as consumers or suppliers.

In low-resource settings such as in affected communities around mining operations, such business models require further research into their social, environmental, political and economic impacts.

2.5 CONCLUSION

The above literature review indicates the complex nature of housing challenges in the platinum mining sector. From a historical perspective, we see that the housing of migrant mine workers was influenced by race-based policies in apartheid South Africa and repressive actions of mining companies. Such policies and actions have built and shaped what is today the unequal society that characterises the mining sector in South Africa. Further, the housing challenges facing the region are an extension of a nationwide challenge of a shortage of decent housing and poor urban planning.

Considering these complexities and challenges, mining companies and mine workers have reacted through various forms of agency. From a mining companies' perspective, that agency has mostly been facilitating development in affected communities under the frameworks of community development and CSR. The agency of mine workers, on the other hand, was resisting unjust policies and actions during apartheid, notably the living conditions in hostels or compounds. This resistance ultimately led to the introduction of the LOA and allowed migrant mine workers to secure their own private accommodation. However, the introduction of the LOA did not improve the accommodation and living conditions of mine workers. What has resulted is more complex housing challenges facing the mining sector.

Emergent housing patterns of accommodation sharing offer the promise of integrating segregated communities around mining operations. Further, the framework of the sharing economy presents an opportunity that can facilitate connecting suppliers of rental housing with customers, thereby creating alternative income and livelihoods for rental housing suppliers, and the provision of decent low-cost rental housing for migrant mine workers.

3 RESEARCH METHODOLOGY

3.1 RESEARCH APPROACH

An inductive research approach was followed for this research. According to Adams, Khan, Raeside and White (2007, p. 29), an inductive approach reveals patterns or trends in a specific variable of interest and these patterns or trends are then used to formulate a general theory. Further, an inductive approach finds application for building theories using case studies (Eisenhardt, 1989). A case study approach was used for this research with the aim of understanding patterns and trends in the rental housing market around platinum mining operations. An inductive approach was therefore selected for this study to reveal patterns or trends from raw data and to build theory.

This research investigated social relations and described reality as experienced by the study respondents (Adams et al., 2007, p. 26). Capturing the lived experiences of study respondents was a key focus of this research throughout the data collection phase. According to Gioia, Corley and Hamilton (2012, p. 16), “to attain qualitative rigour in inductive research requires an approach that captures concepts relevant to the human organisational experience in terms that are adequate at the level of meaning of the people living that experience and adequate at the level of scientific theorising about that experience”. A qualitative research approach is therefore appropriate for this study as it will capture concepts relevant to the human organisational experience of working in the platinum mining sector. In selecting an inductive approach and qualitative strategy, it is assumed that the raw data from the case study will provide enough richness to be able to unearth patterns or models from the data.

This research was guided by the themes and topics that were identified in the literature review, which were used to identify patterns and trends from the raw data.

3.2 RESEARCH SITE

The research site for this study is AAP’s Amandelbult mining operation (FIGURE 1). Amandelbult is situated in the province of Limpopo in South Africa, between the towns of Northam and Thabazimbi, within the north-western limb of the Bushveld Complex (AAP, 2016a). The average number of employees at this operation is 14,500, which includes own-enrolled and contractor employees (AAP, 2016a).

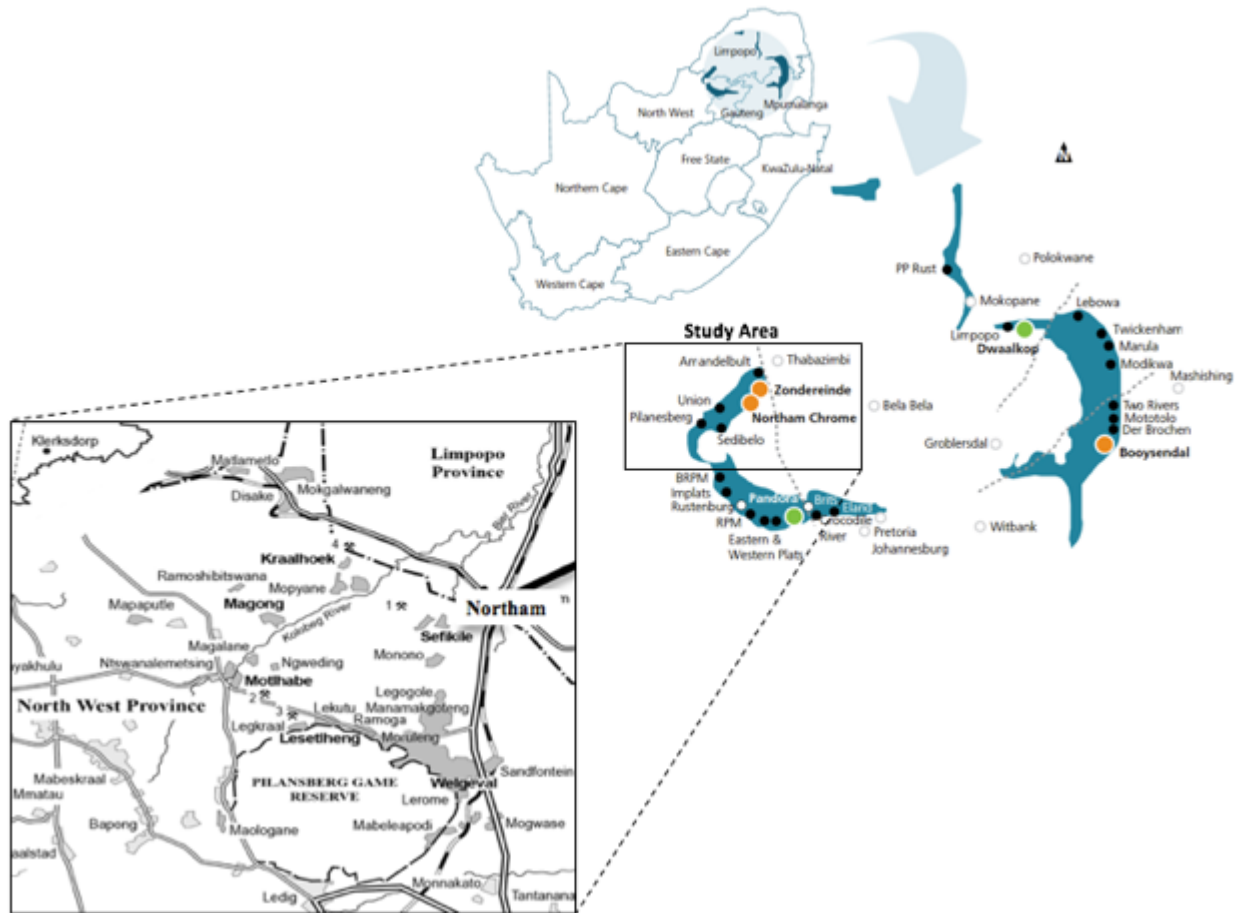


FIGURE 1. MAP SHOWING STUDY AREA.

SOURCE: SOCIETY WORK AND DEVELOPMENT INSTITUTE, UNIVERSITY OF THE WITWATERSRAND AND NORTHAM PLATINUM.

Mine employees working at this mining operation reside in various locations in the Amandelbult mine property and surrounding communities. Employees who reside at the Amandelbult mine property stay at the mine residential area, which consists of various forms of housing. These housing options include standalone houses, guesthouses, and single quarters flat units. Employees who reside in this residential area are mostly skilled middle to high income level employees. There is also single accommodation villages (SAVs) situated within the Amandelbult mine property; these converted compounds or hostel units accommodate mostly low-income migrant mine workers. Other employees working at the Amandelbult mining operation reside in surrounding communities in Northam, Thabazimbi, and the local villages that fall under the Moses Kotane local municipality. A significant number of mine employees working at Amandelbult also reside at Smash Block informal settlement, which is located adjacent to the mine property (FIGURE 1).

Mine employees who reside in Smash Block and SAVs are mostly migrant workers from the Eastern Cape, Lesotho, Mozambique and Swaziland, while those residing in local villages are local indigenous Tswana people and some migrant mine workers.

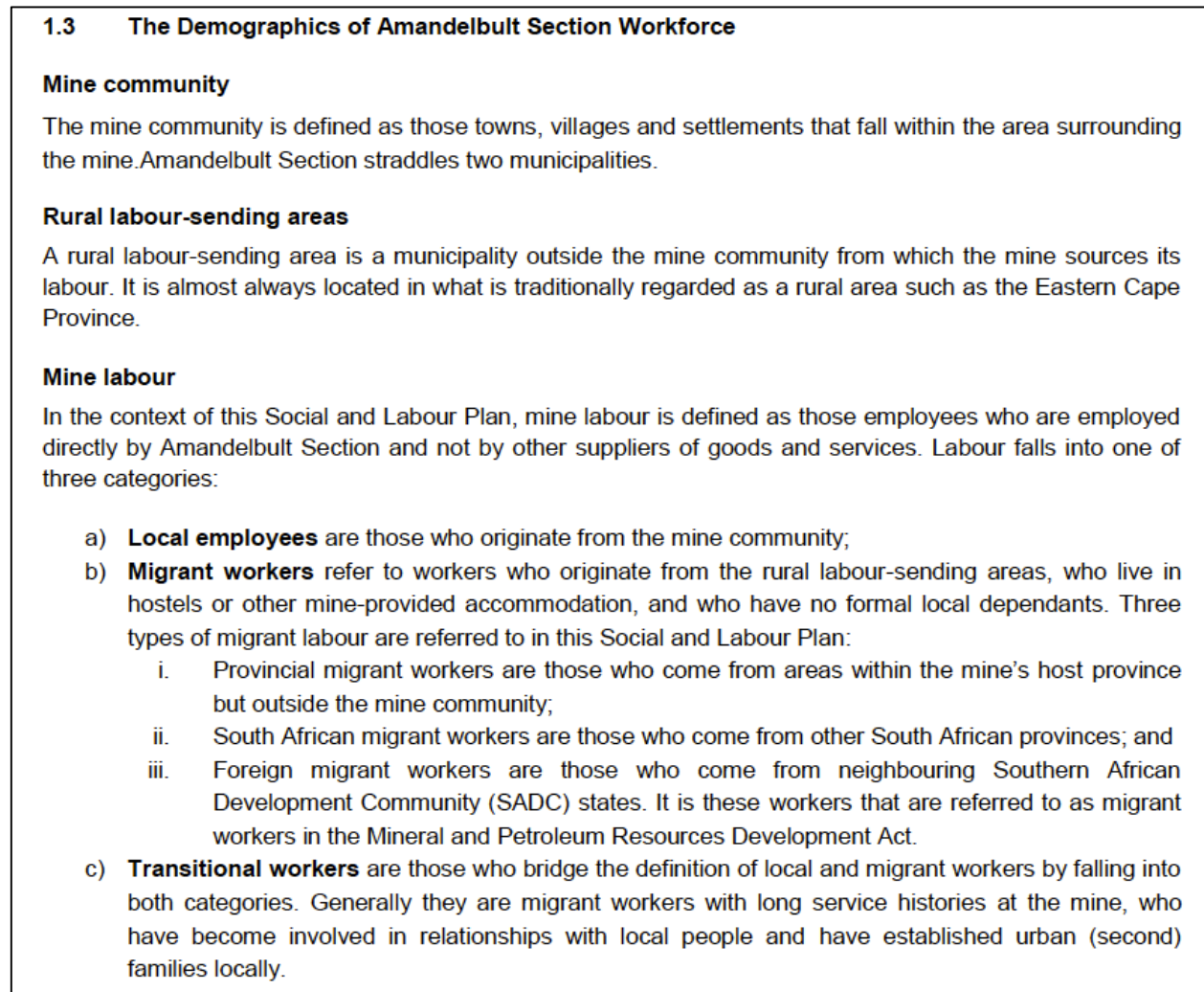


FIGURE 2. DEMOGRAPHICS OF AMANDELBULT MINE WORKFORCE.

SOURCE: ANGLO AMERICAN PLATINUM AMANDELBULT SOCIAL LABOUR PLAN.

3.3 RESEARCH DESIGN

A case study approach was selected for this research in order to conduct an empirical inquiry that investigates contemporary phenomenon in depth and within its real-world context (Yin, 2014, p. 48). In choosing cases for theoretical reasons, Eisenhardt (1989) advises choosing cases that will replicate or extend an emergent theory. The selected case study is embedded within the South African platinum mining sector, which has attracted scholarly interest recently.

An advantage of case study research is that it can employ an embedded design, that is, multiple levels of analysis can be conducted within a single case study (Yin, 2014). For example, the analysis of organisational responses to housing challenges were conducted at the corporate and state levels. A further advantage of using case studies is that multiple data collection methods such as archives, interviews, questionnaires, and observations can be used together in a single case (Eisenhardt, 1989).

The evidence from these methods may be qualitative, quantitative, or both. This allows for the triangulation of data sources and analysis methods, thus improving the rigour and validity of the research findings. Other research designs considered were longitudinal and experimental, however these designs were deemed not suitable based on the amount of time required to collect data in a longitudinal study and the need to establish a control group for an experimental study.

3.4 DATA COLLECTION METHODS

Case study research through an inductive approach can use a range of data collections methods, including interviews, archival information, surveys and observation (Eisenhardt, 1989). The sources of data for this research included interviewing mine employees and company representatives, informal discussions, observations from site visits, participant observation, and review of company documents.

Most of the data were collected through conducting interviews with mine employees and company representatives. Mine employee interviewees were mostly low income mine employees who reside in backroom rental units, informal settlements and SAVs. These mine employees were interviewed at their places of residence and work. Company representative interviewees were AAP group housing personnel. These group housing personnel were interviewed at Amandelbult mining operation and AAP's head office in Johannesburg. Other company representatives were a consultant and housing managers from other platinum mining companies.

Company documents were received from the AAP group housing unit, including strategy and housing standards documents. Other documents reviewed were the company's annual and sustainability reports. The researcher was previously employed by AAP and worked at the Amandelbult mining operation.

Having spent a period of six years working in the platinum mining industry and four of those years at Amandelbult mining operation, the researcher drew on this lived experience for insights. Further, the researcher used participant observation as a data collection method based on this lived experience. The participant observation method has its limitations with respect to researcher bias and influence of being embedded in the phenomena being studied, however (Yin, 2014). The researcher minimised this bias by collecting data from multiple sources to confirm a single unit of analysis.

Interview protocol

The research instrument used was a semi-structured interview protocol. Semi-structured interviews were conducted in person with the study respondents and were guided by the interview protocol (see Appendix B). Each interview was recorded and notes were taken during the interview. An effort was made to give extraordinary voice to the informants in order to represent their voices prominently in the reporting of the research (Gioia et al., 2012).

Sampling

A purposive sample of interviewees was selected from the residential areas where Amandelbult mine employees reside (TABLE 1), i.e. in the local villages and towns in proximity to Amandelbult mining operation (FIGURE 1). Mine employees and rental housing providers were interviewed in the villages of Sandfontein and Welgeval, as well as in the residential areas in the town of Northam (FIGURE 1). Other mine employees were interviewed at Amandelbult mining operation's training centre. Focus was given to lower income category employees and providers of rental housing space. In addition, AAP group housing representatives were purposively selected for interviews at the Amandelbult mining operation and AAP's head office.

To improve validity of the research process, housing managers at other platinum mining companies were interviewed. Housing managers at Impala Platinum and Northam Platinum were interviewed to provide cross data collection. Impala Platinum was selected because its housing development programmes have been recognised by competitor mining companies for best practice. Northam Platinum was selected because its mining operations are located adjacent to AAP's Amandelbult mining operation.

TABLE 1. INTERVIEW SCHEDULE.

Interviewee no.	Designation	Interview venue
1	Housing Manager (Amandelbult)	Housing department offices (Amandelbult)
2	Contract mine employee	Amandelbult training centre
3	Mine employee (Amandelbult)	Amandelbult training centre
4	Mine employee (Amandelbult)	Sandfontein village
5	Rental property owner	Northam town (residential area)
6	Rental property owner	Northam town (residential area)
7	Head of Group Housing Unit (AAP)	Anglo Platinum corporate office (JHB)
8	Rental property owner	Welgevaal village
9	Rental property owner	Welgevaal village (business premises)
10	Rental property owner	Sandfontein village
11	Mine employee (Amandelbult)	Sandfontein village
12	Mine employee (Amandelbult)	Sandfontein village
13	Rental property owner	Northam town (residential area)
14	Mine employee (Amandelbult)	Northam town (RDP area)
15	Mine employee (Amandelbult)	Amandelbult bus rank
16	Former AAP employee	Northgate shopping centre
17	Housing Manager (Impala Platinum)	Telephone interview
18	Housing programme manager (Northam Platinum)	Northam Platinum corporate office (JHB)

3.5 DATA ANALYSIS METHODS

According to Eisenhardt (1989, p. 541), overlapping data analysis with data collection and within a case analysis allows for the generation of insights early in the research process. In this study, an iterative process of data collection and analysis was carried out to gather insights and build constructs. Coding of the data followed the Gioia coding approach (Gioia et al., 2012). This process involved performing first-order coding whilst maintaining as much of the interviewees' expressions as possible. The second step organised first-order codes into second-order themes, and distilled them into groups that represent common themes. Lastly, the second-order themes were distilled further to theoretical dimensions to build a data structure to discuss the research findings.

4 RESEARCH FINDINGS

The first section of this chapter discusses the supply of rental housing in the study area. This section details the factors that drive the rental housing market and the role that context plays in the supply of rental housing. The second section explores the demand for rental housing by considering the factors that drive demand for rental housing, i.e. employee housing preferences, shortage of housing stock, and cost of rental housing. The third section details how information on housing is exchanged between mine employees and providers of rental housing. This includes the communication methods that are used by mine employees to search, connect and distribute information on rental housing. The fourth section of this chapter explores how rental payment transactions are currently facilitated between tenants and rental housing providers. This chapter concludes with an analysis of the past, current and future housing strategies of platinum mining companies and the role they have played in the provision of housing for employees.

4.1 SUPPLY OF RENTAL HOUSING

Based on the research findings, there are three main suppliers of rental housing that are identified in the study area. They include the Amandelbult housing department, local communities, and property developers. The section starts by discussing rental housing supplied by the Amandelbult mining operation's housing department. This housing department owns property in the mine lease area and rents additional property in neighbouring towns. Secondly, rental housing supplied by local communities is discussed. These local communities are in local villages and township areas around Amandelbult mining operation. The rental housing supplied by these local communities caters for mostly low-income migrant mine employees. Lastly, research findings on rental housing supplied by property developers are discussed.

Rental housing supplied by the Amandelbult housing department

The Amandelbult housing department owns various properties in the mine's residential area and the neighbouring towns of Northam and Thabazimbi. Properties owned by the housing department include houses, flats and guesthouses. These properties are rented out to mostly skilled and senior management employees, who are generally middle to high income level employees. These categories of employees are classified under the C and E income levels (TABLE 2).

The Amandelbult housing department rents out houses and flats at reduced rental rates when compared to renting from the open market. Amandelbult and other mining operations that are located far away from urban areas often offer this form of rental housing as an incentive to attract skilled workers to work in these remote mining operations, however the rental housing units offered at Amandelbult are limited and competition amongst employees for these rental units is extremely competitive. Because of this limited rental housing stock available at Amandelbult residential area, the housing department is compelled to rent additional housing units for its employees in locations outside of Amandelbult.

TABLE 2. AMANDELBULT HOUSING DEPARTMENT STOCK.

SOURCE: ANGLO AMERICAN PLATINUM AMANDELBULT HOUSING DEPARTMENT.

		Number of houses							
Income level:		A	AA	AB	C	D	E	Flat	Total
Amandelbult	Owned	3	17	2	33	286	10	2	353
	Rented								
Thabazimbi	Owned	3	89	109	156	68	107	22	554
	Rented	0	1	25	66	22	27	5	146
Rethabile	Owned	0	0	0	114	29	0	10	153
	Rented								
Northam	Owned	0	0	0	20	0	0	0	20
	Rented	0	0	0	70	29	0	10	109
Total	Owned	6	106	111	323	383	117	34	1080
	Rented	0	1	25	136	51	27	15	255

Part of the Amandelbult housing department strategy is to rent houses and flats in the towns of Northam and Thabazimbi to make up for this shortfall. A representative of the department stated that:

“Our main aim is to have houses or access to houses is to give access to housing to all our employees in various forms like company owned houses, lease houses and then various forms of access to their houses like for instance Homeownership Allowances and Living Out Allowances... financial assistance in order at the end of the day to have provision of houses to all our employees” (Interview 1, 2016).

Interviewees at the Amandelbult housing department further indicated that even though they rent additional units in surrounding towns, they cannot extend this assistance to all employees, therefore many mine employees cannot access these company rented housing units.

This is particularly the case for lower income A and B band employees, as they do not qualify for this category of rental housing units. This leaves these employees with the option of either living at the SAVs or accessing the LOA and finding their own private housing. A housing department representative stated that:

“It is virtually impossible to give everybody a house which is company owned that is why the demand for these houses as well if you take your labour plan versus the amount of houses available, so then you determine what is the need percentage of increase, maybe interested in buying houses” (Interview 1, 2016).

Further, from a strategy perspective, AAP’s housing department has a strategy to increase the supply of rental housing stock in areas where the company operates. This strategy direction came as a realisation that most of the workforce at AAP and Amandelbult are not residents from the local areas and have no interest in owning property in these areas. With a significant portion of mine employees utilising the LOA, the need to increase rental housing stock is one that the housing department clearly agrees with. Considering that the housing department strategy has largely been centred on facilitating home ownership for mine employees, a shift towards increasing the supply of rental housing stock is developing. In explaining the five pillars of the housing department strategy, a representative of the department explained that:

“The second one is to ensure that we also build sufficient rental stock specifically to make sure that the people who have come in the regions to come work and they don’t want to be there permanently, they can have that rental stock and we did a desktop study in around 2013/14 where people said they can afford to pay R700 for rental” (Interview 7, 2016).

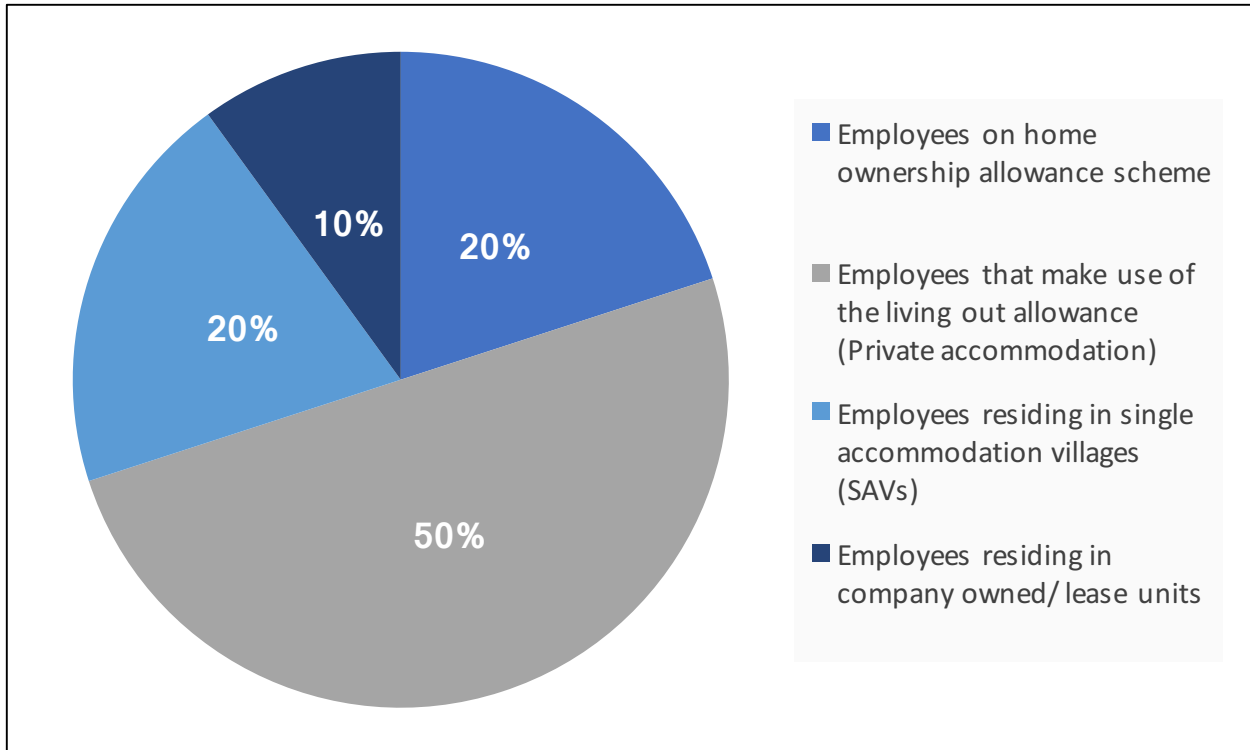


FIGURE 3. AMANDELBULT MINE EMPLOYEE LIVING DEMOGRAPHICS.

SOURCE: ANGLO AMERICAN PLATINUM AMANDELBULT HOUSING DEPARTMENT.

Even though increasing the supply of rental housing stock is a strategy of the housing department, currently, home ownership takes precedence as the leading strategic plan. Through the Employer-Assisted Housing Scheme (EAHS), AAP promotes and facilitates home ownership amongst all its employees. This housing scheme aids qualifying employees to acquire home loans for residential properties in locations within proximity to the mines and facilitate integration into existing communities (AAP, 2015a).

With this scheme, AAP buys well-located residential land and then installs bulk infrastructure in these stands at its own cost. Employees are then allocated these stands where they can build their own houses. The building process is facilitated by the group housing unit with the assistance of construction firms. The employees fund the building of the houses through their acquisition of credit in the form of mortgage loans with commercial banks. Thereafter, employees qualify to apply for a monthly Home Ownership Allowance (HOA), which employees use to pay off their mortgage loans. On the other hand, the group housing unit may assist qualifying employees to apply for the government housing subsidy.

Employees whose salaries range from R1,500 to R3,500 a month are assisted with an application for acquiring a Finance-Linked Individual Subsidy Programme (FLISP) grant from the provincial governments of Limpopo and North West (AAP, 2015a).

Interestingly, even though housing units developed through EAHS and government housing subsidies are intended to be the main residences for mine employees, some are currently being rented out by the owners. AAP developed a EAHS at Northam extension 6 for Amandelbult and Union mine employees, yet some of these are being rented out by the owners. In some of these houses, property owners have built backrooms and are renting them out as well.

From the above, we see that the AAP housing department plays a significant role in the supply of rental housing in the study area. Rental housing units are available at Amandelbult mining operation residential area for a specific category of mine employees. Further, through the EAHS, the housing department facilitates home ownership, and some of the housing units that have been built are subsequently made available to the rental market. As stated by the interviewees at the housing department, the current strategy also includes building additional rental housing stock.

All the above actions point to the housing department playing a bigger role in the supply of rental housing in the study area, however there have been challenges in the implementation of a strategy to increase EAHS and rental housing stock due to a lack of bulk municipal services in the towns of Northam and Thabazimbi. Currently, the Thabazimbi local municipality does not have the capacity to provide bulk services such as water and sewerage works for new developments. This was described by the interviewees at the housing department as a major challenge that has prevented the implementation of their housing strategy. A representative of the department explained that:

“I wanted to build rental stock in Northam; I could not do that because they just don’t have a sewer plant for me to be in a position to build it... I have not even started” (Interview 7, 2016).

“All I did was to say is there land, as soon as I applied to the municipality with a view of wanting to build it they stopped me and said, we can’t increase more households in this area because we don’t have a sewer plant the oxygenation points that are old way of managing affluent sewer have reached their capacity” (Interview 7, 2016).

The latest Social Labour Plan (SLP) for the Amandelbult mining operation indicates that the housing department is in discussions with various stakeholders to address the lack of bulk municipal services. The following section discusses the role played by rental housing provided in local communities.

Rental housing supplied by local communities

Amandelbult is one of several communities situated between the towns of Northam and Thabazimbi, which fall under the Thabazimbi local municipality. The North West provincial border is located approximately 10km south of Northam. Thus, there are communities that fall within the Moses Kotane local municipality that make up the case study area as they supply rental housing for Amandelbult mine employees.

Rental housing suppliers were interviewed at Sandfontein and Welgevaal villages, which fall under the Moses Kotane local municipality. Other rental housing providers were interviewed at Northam RDP and township sections, which fall under the Thabazimbi local municipality. What is common about the rental housing markets in these communities is that they are dominated by backroom rental units that have been specially built for rental purposes.

These rental units are either located within the main residence of the property owner or they are standalone rental units. Further, these rental units are mostly one bedroom bachelor units. Water is provided through a tap or a tank outside the rental unit, and ablution facilities are also located outside of the rental unit. Rental housing provided in these local communities is not to the same standard as that provided by the housing department at Amandelbult. There are no basic municipal services such as sewerage systems in these local communities, yet these rental units are in high demand amongst mine employees who access the LOA but do not want to reside in SAVs or informal settlements. Suppliers of rental housing are aware of the difficult living conditions in informal settlements such as Smash Block, and provide rental housing for mine employees who are not prepared to live in these settlements. A rental housing provider from Welgevaal village stated that:

“From the beginning, I was having..., during that period of 2010 I think it's from 2010 to 2012, my tenants were..., all were working at the mines” (Interview 9, 2016).

TABLE 3. STATISTICS SOUTH AFRICA 2011 CENSUS DATA.

Profile	Moses Kotane Local Municipality	Thabazimbi Local Municipality
Population	In 2001, the population size of Moses Kotane was 237,175 growing to 242,554 in the 2011 census. The economically active population grew from 60.7% to 63.1%.	The Thabazimbi municipality has a population of 85,234.
Gender	For every 100 males, there are 1.012 females, translating into a higher male population in the area.	For every 100 males, there are 0.98 females, translating into a lower male population in the area.
Education	In 2001 the population size with no schooling was 18.9%, dropping to 9.3% in 2011. While those with matric increased from 18.4% in 2001 to 27.6% in 2011, the population with higher education dropped from 5.7% to 5.1% between 2001 and 2011.	8.8% of the population in 2011 had no schooling, while 26.1% had a matric and 8.1% had higher education.
Unemployment	The official unemployment rate in 2011 was 37.9%, 47.4% of which was youth.	The official unemployment rate in 2011 was 20.6%.
Housing	In 2001, there were 61,759 households, which increased in the 2011 census to 75,193.	In 2001, there were 47,215 households, which increased in the 2011 census to 60,319.

During the interview process, the owners of rental housing units were asked questions to uncover the underlying factors that made them enter the rental housing market. The interviewees mainly stated that they entered the market to make additional income. One rental housing provider is quoted as saying:

“Renting provides direct income, and has less hassles than other sources of income. It’s better than running a tuckshop for instance” (Interview 10, 2016).

The interviewees were probed to surface any information that may indicate knowledge of the LOA amongst rental housing providers, however none made any mention of the LOA. What was revealed early on during the interview process was that demand for rental housing exceeds currently available supply. This was indicated by both the mine employees and the rental housing providers interviewed.



FIGURE 4. BACK ROOM RENTAL UNITS AT SANDFONTEIN VILLAGE.

SOURCE: AUTHOR, 2016

Rental housing units that were visited were mostly fully occupied and the tenants living in these rental units did not mention any plans for moving out. Further, most rental housing providers indicated that they do not make use of any advertising, as potential tenants are the ones that come looking for rental housing. A rental property owner from Welgevaal village explained that:

“From time to time people they came for accommodation, even now it's full I don't have any space, but you find that people now they came and say no please if you have a space this is my contact number let me know, so I just keep it here” (Interview 9, 2016).

In the view of the housing department, rental housing provided by local communities is not currently seen as a solution to increase the supply of rental housing stock. This is particularly the case for rental housing provided in local villages.

Representatives of the housing department indicated that the lack of municipal services in these communities hampers the ability to provide decent housing for house mine employees. An interviewee from the housing department stated that:

“They could play a role, but the lack of infrastructure is hampering that and yes in and around mining in areas where we do business, especially in Amandelbult there is lack of basic infrastructure” (Interview 7, 2016).

However, there is recognition by the housing department that rental housing providers in these communities play a role in the supply of rental housing stock. An interviewee within the housing department indicated that they conducted a study between 2013 and 2014 to investigate the rental housing market in these communities. The interviewee indicated that results from these studies showed mine employees were prepared to pay up to R700 a month for a bachelor flat. Based on the results of these studies, no housing developments could be developed to cater for this rental price range. Housing department representatives further indicated that they have been approached by developers who want to develop rental housing units that could be financed through the LOA, which is currently valued at between R1,800 and R1,900. An interviewee working at the housing department indicated appreciation of one proposal from a developer:

“I liked his idea because he was saying just give me the living out allowance I will use that as a rental as long as you can give... say if you give me 500 employees and give me their living out allowance after tax maybe... maybe a marginal rate of it I will provide you with this rental house stock and make sure that it is a block of flats or town houses which has security and everything” (Interview 7, 2016).

After successive interviews indicated a lack of rental housing stock, the providers of rental housing were further questioned to ascertain if they had any plans to provide additional rental housing units. One rental housing provider indicated that he had been approached by people who wanted to rent space in his property and build informal housing structures. The rental housing provider declined these proposals and stated that these approaches were the reasons he entered the market as he saw the need for rental housing. Further discussions with rental housing providers indicated that there is an interest amongst them to provide additional rental units, however these plans are held back by electricity supply regulations.

One interviewee indicated that he had been notified that he would need a separate transformer to be able to supply all the rooms with electricity:

“I did thought about that, but on another side I was having a fear. I was thinking of increasing the rooms, now the problem was the supply of the electricity, when I was talking to the guys at Eskom they told me that I would need to have my own transformer if the rooms are too much” (Interview 9, 2016).

The following section discusses the role played by property developers in the supply of housing in the study area.

Property developers

Property developers were mentioned several times by interviewees during the data collection process. The housing department referred to property developers as being the development partners they work with when they implement EAHS housing developments. Further, the housing strategy contained within the Amandelbult SLP document refers to property developers playing an integral part in the overall housing strategy. Based on company documents and feedback from the interviewees, property developers work with the group housing unit to build houses that are pre-sold to qualifying employees. The Northam extension 6 EAHS was developed by working with property developers and was referred to as being one of the most successful housing projects implemented by AAP. A representative from the housing department stated the following:

“Extension 6 project is the most successful housing project of home ownership we have done in the company and the uptake was slow, but it picked up. We have sold all the 309 houses to the employees all of them and it was 310 but the one stand we had to discard it because it had a servitude problem and it is successful, we have majority of employees from both Amandelbult and Union Mine but the majority is from Amandelbult occupying those houses as we speak” (Interview 7, 2016).

Beyond the role that property developers play in building houses when EAHS housing projects are implemented, they can also facilitate the development of houses outside the EAHS model. This would mean that property developers acquire land, build houses and market them directly to mine employees. The housing department favours this approach and has provided marketing assistance by distributing pamphlets to mine employees in the past. A representative of the housing department stated that:

“I also must say that from time to time you get developers in the local areas as well that we have got close contact with, and they will actually provide us with pamphlets and booklets that we can spread in our SAVs where the lower level people or employees are accommodated” (Interview 1, 2016).

Although property developers do not play a role in supplying direct rental housing stock, data collected from the research indicates that houses built strictly for home ownership sometimes end up being made available in the rental market, i.e. property developers are also suppliers of rental housing, even though this is indirectly.

The lack of bulk municipality services of water and sewerage affects private property developers however, and potential new developments will continue to be halted by these limitations. Overall, the supply of rental housing in the study area is mostly dependent on existing housing stock. Feedback from interviewees and a review of company documents signalled that no new housing stock will come onto the market that could increase rental housing units. This reliance on the existing housing stock looks set to continue therefore, with the ongoing limitations of municipalities to increase the supply of bulk services. The following section continues to discuss the demand for rental housing in the study area.

4.2 DEMAND FOR RENTAL HOUSING

After coding responses from interviews conducted for this research, three main drivers behind the demand for rental housing were identified. These drivers are mine employees housing preferences, the shortage of rental housing stock, and the cost of renting. This section starts by discussing responses from interviewees that indicate the current housing preferences of mine employees. Focus is given to interviewee responses from migrant mine workers who reside in informal settlements, local villages or SAVs. Secondly, the section discusses the shortage of rental housing stock in the study area. Research findings on the shortage of rental housing are based on data sourced from interviewees and company documents. Lastly, research findings on the cost of rental housing in the study area are discussed.

Employees' housing preferences

In the study area, the demand for rental housing is mostly driven by demand from the employees working in the mining operations. This comes as no surprise as the economy in the Northam and Thabazimbi district is overwhelmingly dependent on mining.

During the data collection phase of the research, the mine employees were specifically targeted to gather insights on their housing preferences. In the early stages of conducting interviews, the mine employees that were targeted for interviews indicated that they were migrant workers from other provinces in South Africa. Further, family members or colleagues accommodate most mine employees when they first arrive in the area seeking employment.

However, some mine employees who perhaps secured employment at Amandelbult mining operation before arriving were accommodated in company housing. Feedback from the interviewees indicated that the mine employees have little control in determining the type of housing they prefer when they first arrive in the area, largely because they do not have the income to explore alternative housing options.

The Amandelbult mining operation has a significant workforce that comes from the Eastern Cape; most interviewees from that province indicated that they first lived at Smash Block informal settlement when they came looking for employment. These interviewees expressed quite clearly that they were not satisfied with the living conditions in this informal settlement, and these conditions were the reason why some had looked for alternative housing. One mine employee made the following comment:

“At Smash Block, I don't even want to mislead you my brother, the life there I couldn't stand it. There is no water, no electricity, there is no toilets you see” (Interview 12, 2016).

The lack of electricity and water are the major grievances that make new recruits move out of informal settlements, while high crime levels were also mentioned as a concern. Other interviewees mentioned that they prefer to live in rental units that are next to the road along major transport routes. One mine employee working at Amandelbult mentioned that:

“Sandfontein, I like that it's by the road, even when I go home, I can get off on this road and I do not have to travel a long distance to get to my place” (Interview 11, 2016).

The above feedback from the interviewees indicates that mine employees' housing preferences act as a primary driver in the demand for rental housing. This causal link is supported by the fact that most rental housing providers cater for mine employees. In addition, the lack of basic services in informal settlements will continue to create a demand for rental housing. Further, a heightened spirit of solidarity was observed amongst mine employees, which extends beyond housing to improving the lives of mine employees in general. Responding to a question on the shortage of decent housing in the study area, a mine employee stated that mining companies should build houses and made the following comments:

“They should be nice houses where you can stay with your family and you can have people visiting you. It would also end sick leave abuse, because people are always taking sick leave because they want to go and see their families. If their family were to be close it would be a good thing” (Interview 15, 2016).

Historically, solidarity amongst mine employees has always been a characteristic of the South African mining industry. Considering the repressive nature of the industry, currently and historically, mine employees have always stood together to challenge unjust practices. More recently in the platinum mining sector, there has been increased agency from mine employees in challenging mining companies to provide better working and living conditions. This agency is translated into mine employees being more proactive and moving out of informal settlements to reside in accommodation that meets their housing preferences.

The following section discusses how the shortage of housing influences the demand for rental housing.

Shortage of rental housing stock

The shortage of rental housing stock is a major driver of the demand for rental housing in the study area, as was expressed numerous times by representatives of the AAP housing department. The inability to increase the supply of bulk services in the towns of Northam and Thabazimbi has halted all plans of the housing department to build rental housing units. Further, this limitation probably affects other planned property development that would have been initiated by private property developers or the government's Human Settlements department.

A review of company documents and feedback from interviewees does not indicate that there is currently a strategy that can be implemented immediately that will increase rental housing stock, however with the closure of a Kumba iron ore mining operation in Thabazimbi, the housing department indicated that new rental housing stock came onto the market. This is a result of mine employees either being transferred or retrenched, and subsequently vacating houses that the company was renting for them. A representative of the housing department stated the following:

“So houses were actually very, very scarce in the recent past, but with for instance Kumba that actually are busy closing their operation now there is a little bit more houses available and we recently embarked on a project where all our 268 lease units we contacted the agents and the owners and we sort of negotiated the rates a bit lower because there are more houses available” (Interview 1, 2016).

However, the housing department representative added that this additional housing stock did not last in the market because of a sudden increase in construction projects in Northam and Thabazimbi, i.e. this new housing stock was taken up by contractors working on these construction projects. Despite this, some mine employee interviewees indicated that they did not struggle to secure their current rental housing units, which was probed further to determine how the mine employees went about searching for rental housing. The responses were that they relied on friends and colleagues to recommend places where they could rent. Often, these friends or colleagues were already living in rental housing units, either in Northam or in local villages. A mine employee who previously stayed at Smash Block and now resides in Northam stated the following:

“We found it quickly because we know people staying there. They would tell us that there are rooms available and that they would look for accommodation for us” (Interview 15, 2016).

However, this was not the case for all mine employees. Some indicated that they walked by foot and looked for places that had backrooms for rental. This practice is quite common in the study area, and several mine employees indicated that this is how they search for rental housing. Rental housing providers indicated they also connect with potential tenants through similar methods. Further, rental housing providers mentioned that they did not make use of any advertising, as new tenants often came by themselves to look for housing. A rental housing provider is quoted as saying:

“From time to time people they came for accommodation, even now it's full I don't have any space, but you find that people now they came and say no please if you have a space this is my contact number let me know, so I just keep it here” (Interview 9, 2016)

Another key observation is that currently no contracts govern the relationship between rental housing providers and tenants. This was an interesting observation considering that rental prices normally increase on an annual basis in other rental markets such as in urban areas. Both tenants and rental housing providers were not bothered by the fact that there were no contracts governing the relationship. This arrangement indicated that such is the demand for rental housing in the study area, that tenants often stay for a long period without changing their addresses. Feedback from the interviewees indicated that once a tenant had secured housing they are content with, the chances are that they will stay in that address for a considerable period. A mine employee renting a room at Sandfontein village stated that:

“I am renting without a fixed term agreement; I was never told about an agreement to rent for a certain period. Maybe I can even stay here for another 20 years on top of the years that I have stayed already” (Interview 12, 2016).

Further, tenants who rent rooms in ideal locations such as rental units near the road in local villages reported high satisfaction levels with their current housing; many had been staying at the same address for a long period. Other tenants who were renting rooms in the residential area in Northam also indicated high satisfaction levels. However, the demand for rental housing is not only confined to houses, flats and back rooms; there is also the renting out of stands or informal housing structures. At the Smash Block and Northam informal settlements, there is a rental market based on the letting out of a stand where an individual can construct an informal housing structure and live in it.

In addition, there are also mine employees who rent ready built informal structures. What was noted from interviewee feedback was that the cost of renting an informal structure at Smash Block was significantly cheaper when compared to other areas. A mine employee working at Amandelbult mentioned that he was paying R250 rent per month for a shack (Interview 3, 2016). Considering that the Smash Block informal settlement has no water and electricity, rental prices are expected to be the lowest in this area.

Overall, the demand for backroom rental units exceeds the demand of informal structures. However, as previously observed, new recruits will live in informal settlements until such a time that their financial position improves and they can look for alternative housing. Further, rental housing providers seem to take advantage of market demands and charge higher prices in locations that are highly sought after by tenants. The following section discusses how the cost of renting influences the demand for rental housing.

Cost of renting

The cost of rental housing is a significant factor that influences the demand for rental housing. In the study area, the cost of renting is influenced by the type of housing structure, the location of the rental property, and the type of facilities that are installed in the rental property. Based on physical observations made during the data collection process, rental housing structures are divided between formal, semi-formal and informal housing structure for this study. Formal housing structures are mostly found in residential areas that are demarcated by the municipality. Such housing structures are installed with municipal services, which include water, sewerage and electricity.

These housing structures are the rental units that the housing department rents in the towns of Northam and Thabazimbi for employees that cannot be accommodated at Amandelbult residential area. This category of housing structures also fetches the highest prices in the rental housing market. The second semi-formal housing structures are backrooms in local villages and the Northam RDP section and residential area. These housing structures are often one bedroom, open plan, bachelor units built in a row next to each other. These rental units have electricity installed and water is accessed from outside through a borehole or water tank. Ablution facilities are also located outside the rental unit. Interviewees gave a rental price range of between R450 and R1,200 for these units. The most expensive rental units are in the town of Northam.

The third category of housing structures is informal structures, which are mostly in areas that have not been demarcated for human settlement by municipality authorities. Most of these structures are built with corrugated iron in the study area, and there are no electricity, water or sewerage services. The cost of renting these structures is between R250 and R750 based on feedback from the interviewees.

Rental prices are higher for informal structures in Northam because of the location. A mine employee working at Amandelbult stated the following regarding the rental price:

“At Northam you will rent a shack for R750. The thing is people who rent out rooms have that thing to say that the RDP section is in town, but it’s actually on the outside of town. You still need to take additional transport to get there, and if you decide to walk you arrive home very tired” (Interview 15, 2016).

From the above, it can be seen that the type of housing structure, location and available municipality services determines the rental price. From a demand perspective, it is the semi-formal rental units in local villages that are in most demand from mine employees. The cost of renting these units is currently the most affordable for mine employees in the lower A and B band income level. Further, at a value of between R1,800 and R1,900, the LOA can cover the rental cost of these units.

4.3 INFORMATION EXCHANGE

This section of the findings chapter discusses the information exchange methods in the rental housing market. The section begins by discussing the peer to peer sharing of information by consumers and suppliers of rental housing. Insights on peer to peer sharing of information are primarily based on interviewee data. Secondly, the methods used by people to search for rental accommodation are discussed. Lastly, based on responses from rental housing providers, the methods used by rental housing providers to connect with potential tenants are discussed.

Peer to peer sharing of information

The rental housing market in the study area is well developed and there are established information exchange channels between the various stakeholders. These information exchange channels occur mostly between consumers and providers of rental housing space. Consumers of rental housing space are mostly mine employees and other individuals that are working in the area. The providers of rental housing are private property owners and housing departments within mining operations. The various stakeholders involved in the rental housing market have developed information sharing practices to adjust to the circumstances in the area. A common information sharing practice common in the area is peer to peer sharing of information. This practice is common amongst mine employees, who exchange information about where their colleagues can search for and secure rental housing.

This practice is carried out mostly by verbal communication between parties, where one party will share information with another party on where they might secure rental housing. This information surfaced during interviews with mine employees, where they indicated that they rely on either colleagues or friends to find and secure rental housing. Mine employees spend a significant portion of their time with their colleagues at the mining operations, and it is here that peer to peer information is exchanged. A mine employee working at Amandelbult stated the following about how he shares information with his peers:

“Especially around month end, because there are a lot of people that shift from their rooms around month end, so I would tell them that there is such a space available and they can come and rent” (Interview 12, 2016).

Interestingly, the mine employees did not mention making use of any technology applications to distribute information, despite probing to surface any information that would indicate the capturing of information on rental housing and subsequent distribution. Another observation was that most of the mine employees interviewed were migrant workers, and there seemed to be a sense of solidarity amongst them. Migrant mine workers were the most represented workforce group in the study area, therefore the sharing of information goes beyond assisting a fellow colleague at work, but is also a brotherly act between employees who originate from the same province and happen to share a common language. This solidarity amongst mine employees was also noted by an interviewee who experienced discrimination at the hands of the local indigenous community. The mine employee stated the following:

“Here in the community it's the apartheid of the Tswana people, but there is nothing they can do about it. They just have apartheid for no reason, we are also part of this nation South Africa, sometimes they have an attitude of undermining us, where they call us people that rent” (Interview 12, 2016).

Information sharing amongst employees is an embedded culture that appears to have developed over the years. Context specific circumstances and solidarity amongst mine employees stands out as the major drivers behind this practice. Beyond peer to peer sharing of information between mine employees, there is also sharing of information between the housing department, estate agents and property developers. This sharing of information occurs mostly for marketing purposes between property developers and the Amandelbult housing department.

There are cases when property developers will notify the housing department about upcoming property development projects and the housing department provides marketing assistance. A representative of the housing department gave the following example of sharing information:

“Yes, we normally just contact them and source and then there is almost immediately communication between us that what is available in the market and what prices. I also must say that from time to time you get developers in the local areas as well that we have got close contact with, and they will actually provide us with pamphlets and booklets that we can spread in our SAVs where the lower level people or employees are accommodated and so we even sometimes assist them with time slots where they can advertise their development local development within our SAV areas so that the people are aware of what is happening and what is available in which price brackets as well so what they can afford” (Interview 1, 2016).

However, as wide as the practice of information sharing is, rental housing providers from the local villages did not indicate that they practice peer to peer sharing of information. Considering that the demand for rental housing currently exceeds supply this comes as no surprise, and the current rental housing market does not require rental housing providers to invest resources into advertising their rental space. The following section discusses how people search for rental housing.

How people search for rental housing

Searching for rental housing follows a similar practice as peer to peer sharing of information, i.e. information on available rental housing is exchanged mostly between individuals who know one another. In the study area, feedback from the interviewees indicated that when searching for rental housing in the backroom rental market, there are two main methods to follow. The first is that the individual must physically visit areas with backroom rental units and ask if there are vacant rental units. Secondly, an individual can ask colleagues or friends who are already residing in rental units to search for information on available vacant rental units. A mine employee residing at a backroom rental unit in Sandfontein village stated the following:

“In general, there is not any advertisement of the rooms, the only way is through the other people to know about the rent, or its either you have to walk and maybe you will see there are rooms around there” (Interview 4, 2016).

Currently, information on available rental housing is distributed by mine employees who previously resided in informal settlements or SAVs. This information is mostly shared with colleagues or friends who are searching for rental housing.

This practice is considered the most efficient as it saves the individual time and travelling costs. By asking a friend or colleague to search for rental housing on their behalf, an individual will act on information received from a trusted source. The following section discusses how rental housing providers connect with potential tenants.

How rental housing providers connect with potential tenants

The two main rental housing providers that are most active in the study area make use of different methods to connect with potential tenants. Rental housing providers who rent out housing space to the Amandelbult housing department rely on its personnel to connect them with tenants. In fact, the housing department is the main tenant in transactions involving renting housing on behalf of mine employees. On the other hand, rental housing providers that provide backroom rental units in local villages and residential areas in Northam invest few resources to connect with potential tenants. Currently these rental housing providers do not make use of any advertising to connect with potential tenants, and the peer to peer sharing of information by mine employees is what currently acts as a connecting method between rental housing providers and tenants.

Such is the demand for rental housing in the study area, that when a new backroom rental unit is being built, potential tenants will request to take occupation as soon as construction is completed. Rental housing providers indicated that they do not struggle to find tenants and that most of the time it is tenants who approach them. Further, considering that when most tenants secure housing which meets their living preferences, they often stay there for long periods without moving.

Tenants in local village backroom units reported having spent more than a year at their current address. Interviewees who indicated that they were satisfied with their current housing mentioned they had no plans of seeking alternative housing. A few tenants mentioned they would only move if they were perhaps transferred to another area by their employers.

In summary, the peer to peer sharing of information by mine employees' benefits property owners the most, as rental housing providers in local villages do not have to invest in advertising campaigns to connect with potential tenants. This characteristic of the rental housing market looks set to continue if demand overwhelmingly exceeds supply.

The next section discusses transaction methods between tenants and rental housing providers, and the relationship between these two parties.

4.4 TRANSACTION METHODS

This section of the findings chapter discusses the transaction methods used by rental housing providers and tenants to facilitate payment of rent. Secondly, the section discusses the relationship between tenants and rental housing providers. Study findings on this section are based on interview data. The main study respondents were rental housing providers and tenants residing in local villages and townships around the Amandelbult mining operation.

Current transaction methods

The main transaction that occurs between rental housing providers and tenants is the monthly rental payment, which is done through physical cash or electronic transfer of funds. Currently, the housing department makes the most use of electronic payments when it pays the property owners or estate agents it is renting property from, while transactions in the dominant backroom rental housing market are mostly facilitated through cash. Both the tenants and rental housing providers indicated that they either pay or receive rental payment using physical cash. Some rental housing providers and tenants indicated that they would prefer electronic payments, however they were in the minority.

Interviewees were probed during the data collection process as to why they preferred cash and whether they had ever considered electronic transfer of funds. The rental housing providers indicated that they did not have a preference over any specific payment method. Even though most received rental payment through cash, they indicated they had no problem receiving rental payment through electronic transfer. A rental housing provider at Welgevaal village stated the following:

“The ones that I have they pay cash, there was only one guy who normally was preferring electronic transfer”

“I don't have a problem with any kind of payment” (Interview 9, 2016)

Most tenants mentioned that their rental housing provider does not reside in the same property they are renting and comes monthly to collect the rent. Interviewees were further probed following the surfacing of this information, as to what happens when the rental housing provider comes to collect the rent and they are not around. A mine employee renting a backroom in Sandfontein village responded that:

“We normally take the money to the house next door, the house next door is her brother’s house, so we just pay it there” (Interview 12, 2016).

Considering these practices, there is an element of trust that has been built between tenants and rental housing providers in these communities. The same respondent above indicated the following with regards to making payment arrangements:

“When you have a problem, you can speak to her and you can pay the rent combined if you have missed some months” (Interview 12, 2016).

In addition, the rental housing providers indicated that they had not experienced any problems with their tenants and the non-payment of rent is not an issue.

The following section discusses the relationship between tenants and rental housing providers.

Relationship between tenants and rental housing providers

Based on the previous section on transaction methods, the relationship between tenants and rental housing providers is one that is built on trust. This is particularly the case with tenants and rental housing providers in the backroom rental market. Most tenants and rental housing providers indicated that they have no lease agreements in place; tenants are not confined to rental periods and can rent for an unlimited period. Further, during discussions with interviewees, the concept of committing to a contract was deemed not necessary to manage the rental agreement relationship.

A backroom rental housing provider at Northam commented that:

“They rent the way they want to rent, if you move out then you move out. There is no rental term, it's up to them” (Interview 6, 2016).

The interviewees were further probed to determine if security was held for breakages or non-payment of rent. The responses were varied, however most rental housing providers indicated that they do not hold security for breakages or non-payment of rent.

Further, trust was observed to be highly regarded in the communities that were visited. There is an expectation that tenants are responsible enough to not take actions that would jeopardise these relationships that are built on trust. One rental housing provider did indicate that they put measures such as interviewing tenants and holding a deposit in place however, stating that:

“I also interview tenants to assess this behaviour and request copies of their identification documents”
(Interview 10, 2016).

Another rental housing provider stated the following in how he manages relationships with tenants:

“The only thing that I tell them that you see ok, you will be renting only the room and anything that breaks inside there it becomes your responsibility. Because when I offer a room I make sure that the room is in good condition, I repair whatever the breakage that were there” (Interview 9, 2016).

The following section discusses the past, current and future housing strategies of platinum mining companies and how they have shaped the housing market around mining operations. Focus is given to the housing strategies of AAP, Impala Platinum, and Northam Platinum.

4.5 HOUSING STRATEGIES OF PLATINUM MINING COMPANIES

AAP operates alongside other platinum mining companies in the Rustenburg region, including Impala Platinum, Royal Bafokeng Platinum, and Sibanye Platinum. In the study area, Northam Platinum’s Zondereinde mining operation is situated adjacent to AAP’s Amandelbult mining operation. A review of AAP’s housing strategy was conducted based on company documents and feedback from interviewees. Further, Impala Platinum’s housing strategies were reviewed based on company documents and feedback from interviewees. Lastly, Northam Platinum’s company documents were reviewed and qualitative interviews were conducted with housing managers. Impala Platinum was selected as a case based on feedback received from interviewees at AAP about their housing developments, while Northam Platinum was selected based on the Zondereinde mining operation’s proximity to the case study area.

Anglo America Platinum: Housing strategies in the colonial and apartheid era

Historically, the housing strategy of AAP was like other mining companies operating in the platinum mining sector, i.e. the policies of the apartheid government overwhelmingly influenced them. These policies regulated that mine employees must be accommodated according to their racial group. Historically the mining sector extensively utilised migrant labour, most of whom were black Africans from the homelands and neighbouring states.

Housing for these migrant workers was originally only offered in single-sex compounds located within the mining operations, however towards the end of apartheid rule in South Africa, the race-based housing policies were relaxed and the migrant mine workers started moving out of compounds and integrating with local communities. This freedom of choice saw large numbers of mine employees who had previously lived in the compounds move out and secure their own accommodation. In addition, there was intense political pressure from trade unions for companies to provide a living out allowance for mine employees. The introduction of the LOA came during this period and has characterised the housing strategies of mining companies in the platinum sector, including AAP.

In the period between post-apartheid South Africa and the enforcement of the Mineral and Petroleum Resources Development Act 28 of 2002 (MPRDA), mine employees continued to be housed in single-sex compounds. This period also saw the growth of informal settlements around mining operations which was directly attributed to the introduction of the LOA, as well as growth in the number of skilled black mine workers. Housing for these skilled workers was provided in residential areas previously reserved for white workers only, in residential villages within mining operations or suburbs in mining towns.

During this time, the housing strategy of AAP provided three main forms of housing options for mine employees. The first was housing in single-sex compounds within the mining operations, the second was accessing the LOA and securing private housing, and the last was being accommodated in company owned or rented houses. The former two housing options were mostly for lower category workers, while the latter was for skilled employees. These housing options continued to exist without many new options until the introduction of the MPRDA.

The housing strategies of AAP and other platinum mining companies changed after the enforcement of the MPRDA to align with the regulations. This Act, together with the Mining Charter, required the conversion or upgrading of hostels or compounds into family units, the attainment of an occupancy rate of one person per room, and the facilitation of home ownership for all mine employees (DMR, 2010). A consultant previously employed by the AAP group housing unit gave the following statement:

“Ja, when I joined it was when they had that major drive, the hostel conversions, that’s the only reason I joined actually. And throughout, the period my role was based on compliance that’s it. Yes, as an HOD you will come out with clever ideas, you see here is not compliance you know here we must do this as a responsible cooperate citizens or whatever, but we must do this. But there, in fact let me say housing shifted from being a what they call a strategic asset to becoming a compliance asset. You know before it was going to Amandelbult we don’t have houses okay let’s build a mining village it was a strategic asset you see. Let’s build hostels it was a strategic asset and then came the mining charter it was like okay how do we build homes for these employees you know. You are seeing more home ownership projects from mining companies again it’s a compliance issue. It’s not a by the way we need to build these rental units, they meet the mining charter says more home ownership and that’s why, but the reality is that you can’t have home ownership you know” (Interview 16, 2017).

Further, the Housing and Living Conditions Standard for the Minerals Industry, as gazetted on 29 April 2009, was to be implemented together with the MPRDA. Following the implementation of this legislation, the housing strategy of AAP was further aligned to comply with the new regulations, which exacerbated the housing challenges affecting AAP and the platinum mining sector - most commonly in the Rustenburg region.

In addition, from 2004 to 2010, the platinum mining sector grew exponentially because of high commodity prices. This growth attracted people from other regions into the sector, increasing the population in platinum mining towns and stretching the housing resources of municipalities. In reflecting on past housing strategies by AAP and other platinum mining companies, there is a realisation that some mistakes were made. The first mistake that was admitted by representatives of mining companies is the introduction of the LOA - specifically the introduction of the LOA without providing sufficient housing stock for mine employees to purchase or rent.

Some mining company representatives point to the introduction of the LOA as cause of some of the current housing challenges. A representative of the housing department at AAP made the following statement regarding the effects of the LOA:

“No, it has been and it is not going to go away anytime soon because it’s now part of the package in a sense that it gets negotiated even during the salary negotiations so they are so used to it, it is entrenched, the living out allowance I think it is a monster that the mining sector agreed upon without thinking about the repercussions going forward” (Interview 7, 2016).

Overall, the housing strategy of AAP has been largely influenced by state legislation in South Africa. The apartheid, transition, and democratic eras each saw the introduction of various laws that influenced the housing strategy of AAP and other mining companies. However, it was not only legislation that influenced the housing strategies of the companies; political and economic factors also played a role, yet it was beyond the scope of this research to investigate these factors.

The following section discusses the current housing strategy of AAP.

Anglo American Platinum: Current housing strategies in the post-apartheid era

Based on company documents and feedback from company representatives, the following are the main strategies that AAP is currently implementing: the building of sufficient housing stock to attract and retain critical skills in mining operations, promoting home ownership, the provision of decent rental housing, and the implementation of financial literacy and debt rehabilitation programmes. Common and central to these strategies is the promotion of home ownership amongst mine employees and compliance with DMR regulations.

To date, the building of sufficient housing stock has been tied with implementing the EAHS. In the various locations where AAP operates, EAHS have been implemented to promote home ownership amongst employees (AAP, 2015b). With this scheme, AAP buys well-located residential land and then installs bulk infrastructure in these stands at its own cost. Employees are then allocated these stands where they can build their own houses. The building process is facilitated by the group housing unit with the assistance of construction firms. The employees fund the building of the houses through their acquisition of credit in the form of mortgage loans from commercial banks. Thereafter, employees then qualify to apply and be granted a HOA monthly by the company.



FIGURE 5. HOUSE IN NORTHAM EXTENSION 6 EMPLOYEE HOUSING SCHEME.

SOURCE: AUTHOR, 2016

The HOA assists employees in paying off their mortgage loans. In addition, the group housing unit may assist qualifying employees to apply for the government housing subsidy. Employees whose salaries range from R1,500 to R3,500 a month are assisted with an application for acquiring a Finance-Linked Individual Subsidy Programme (FLISP) grant from the provincial governments of Limpopo and North West. To date, successful EAHS have been implemented in Seraleng in Rustenburg and Northam extension 6. These housing developments saw many mine employees becoming home owners for the first time.

Feedback from interviewees and the review of company documents indicated that various challenges have been experienced in promoting home ownership amongst mine employees. The main challenge is the indebtedness of employees and their inability to qualify for mortgage loans. AAP's group housing unit has implemented financial literacy and debt rehabilitation programmes to address this challenge. However, company representative interviewees indicated that the indebtedness of employees was not that severe and a strategy was implemented to rehabilitate employees that are indebted. Meaning that even though employees are indebted, the amount of debt is not that high and employees can be rehabilitated.

In the debt rehabilitation programme, employees enter the EAHS on a preliminary basis until they were debt free, i.e. they would take occupation of a house but would be paying rent for the period they were in the debt rehabilitation programme. After they had successfully completed the debt rehabilitation programme, they would then enter the main EAHS and qualify for a mortgage loan from a bank as a home owner. A former employee at AAP's group housing unit gave the following input regarding this debt rehabilitation programme:

“I was saying earlier when we met with the credit committees of the bank, he said so some of these employees are indebted so let's come up with a strategy that will see these employees go through a debt repair programme and within a two-year stand we knew that's the worst. If you come to the bank with I don't with the worst debt there is the programme that they can put you on, two years will be cleaned up see. We ran set worst case scenario two years lets apply to this factor so in four years we know that the employee can be cleaned debt wise” (Interview 16, 2017).

An additional challenge that has been experienced in implementing the home ownership strategy is attracting lower income employees to participate. To date, the home ownership programmes have not attracted a lot of interest from A and B band employees. Considering that it is the lower income level employees who are most affected by the housing challenges, it should be these employees that benefit the most from the EAHS, however most employees who have utilised the programme have been middle to higher income C and D band employees. This low level of interest in the home ownership programmes is a serious challenge for AAP and poses a risk to their operating license, because if they continue not being able to attract employees who live informal settlements to access new housing options, the company will fail to comply with the DMR regulations.

To date, the group housing unit is working on strategies that can address this challenge. In AAP's 2015 sustainability report, the high number of employees receiving the LOA was identified as a material issue:

“An ongoing concern relates to over 26,000 employees who receiving living-out allowances. In most cases, only a portion of the allowance of R1,840 per month is spent on accommodation; the balance is used to supplement earnings and employees choose to live in informal settlements” (AAP, 2015b, p. 37).

Another challenge noted in the company documents that has affected the implementation of AAP's housing strategy is industrial action. Following the protracted strike in the platinum mining sector in 2014, mine employees defaulted on their mortgage payments due to not getting salaries. This has made the financial institutions reluctant to grant mortgages to mine employees in the platinum mining sector. A former mine employee at AAP's group housing unit made the following statement:

“When was it, the strike – the AMCU strike. Because now the company is saying no we are not going to pay you and guess who suffers, the banks. You know they have extended all of these bonds to employees and the money is not forth coming. That again when things started to go pear shaped ... you promised all these nice things the event it's 1 in 100 years you know that scenario like that will be activated but it happened” (Interview 16, 2017).

In addition to the above housing initiatives, AAP has also managed to attain single-room occupancy at its SAVs (AAP, 2015b, p. 37). According to AAP's 2015 sustainability report, the company is making progress in providing family housing units and single accommodation, however the company also reports that the level of occupancy at SAVs is steadily decreasing. In 2014, there were 6,400 employees living in SAVs, whereas 5,743 were recorded in 2015 (AAP, 2015b, p. 37).

The following section discusses the potential future housing strategies of AAP.

Anglo American Platinum: Future housing strategies

Based on company documents and the feedback from interviewees, AAP has future strategies to address the housing challenges in the areas in which they operate. The main strategies are: converting the LOA into a rental allowance to allow the natural attrition of mine employees from informal settlements to decent rental housing, implementing home ownership programmes in labour sending areas, and considering a drive-in and drive-out work cycle.

Considering the feedback from AAP’s group housing representatives, there is agreement that rental housing options for mine employees need to be a key component of their housing strategy, hence the strategy of gradually introducing a rental housing allowance and phasing out the LOA. However, currently it is not clear how this strategy will be implemented and how the rental housing stock will be increased. If informal settlements are to be eradicated, there will need to be sufficient replacement rental housing to accommodate the mine employees currently residing in informal settlements.

TABLE 4. PLANNED HOUSING DEVELOPMENTS IN NORTHAM AND THABAZIMBI.

SOURCE: ANGLO AMERICAN PLATINUM AMANDELBULT SOCIAL LABOUR PLAN.

Name of Project	Number of Units	Start Date	Duration	Completion Date
Northam Anchor Project	2832	FY 2018	10 years	December 2028
Thabazimbi Ext. 18 & 22	89	FY 2016	1.5 years	June 2017

Another strategy that is being considered is facilitating home ownership programmes in labour sending areas such as the Eastern Cape. No concrete evidence could be sourced as to why this strategy is being considered and how this would reduce the housing challenges around the mining operations. A possible motivator could be compliance with the DMR regulation that is currently advocating for increased home ownership for mine employees.

A drive-in and drive-out working cycle has also been considered, where mine employees will not be based at the mining operations, but will work for fixed periods of time and retreat to their home bases. With this strategy, there will only be a need to provide temporary housing for the period that mine employees are working at the mining operations. In other major mining economies, such as Australia, there are fly-in fly-out working cycles, where employees fly to mining operations and work for fixed periods then retreat to their home bases when off-duty. The following section discusses the housing strategies of Impala Platinum.

Impala Platinum: Housing strategies in the colonial and apartheid era

Impala Platinum is one of the world's leading producers of platinum and associated PGMs (Impala Platinum, 2016c). Impala Platinum's operations are located on the Bushveld Complex in South Africa and the Great Dyke in Zimbabwe, the two most significant PGM-bearing ore bodies in the world. In South Africa, most of Impala Platinum's operations are in the Rustenburg area (FIGURE 1).

Like AAP, Impala Platinum operates deep mining operations utilising labour intensive mining methods. Historically, migrant mine workers provided this labour for Impala Platinum's mining operations. Further, as with other mining operations during the colonial and apartheid eras, single sex hostels provided accommodation for these migrant mine workers. Currently Impala Platinum is on a drive to convert its historical single sex hostels and compounds into single or family units. Company documents indicate that over the last five years, the company has converted three hostels into 5,375 single units, and one hostel into 264 family units (Impala Platinum, 2016a). Based on these figures, Impala Platinum is actively eradicating the negative legacy of hostel accommodation. A housing manager based in Rustenburg mining operations indicated that Impala Platinum is well ahead of meeting its Mining Charter targets with respect to converting hostels:

“Now we are ahead of that. If it comes to the Mining Charter, we are since 2014, we already on one person per room. Remember previously it was sixteen people staying in one big room, then we reduced it to two people per room and I think it is December 2014 we were on one person per room” (Interview 17, 2017).

Based on company documents and feedback from the interviewees, there is no evidence that indicates Impala Platinum's housing strategy was markedly different from other mining companies during the colonial and apartheid era. The following section discusses the current housing strategy of Impala Platinum post-apartheid era.

Impala Platinum: Current housing strategies in the post-apartheid era

During the post-apartheid era, large numbers of migrant mine workers exited Impala Platinum's hostels to secure private housing in local communities around mining operations. Extant literature indicates that this exodus from mine hostels occurred across the mining sector, especially in the gold and platinum mining sectors (Bezuidenhout & Buhlungu, 2011).

During the early period of South Africa's democratic government, the provision of the LOA benefit defined much of Impala Platinum's housing strategy. In this period, most lower-income employees resided in backroom rental units and informal settlements in local communities. The housing strategy of Impala Platinum started to change after the introduction of MPRDA in 2002, however, and changed drastically in May 2007 when the board approved a budget for large scale housing projects (Impala Platinum, 2016a).

The housing strategy aimed to achieve a collaborative relationship with government to accelerate housing delivery; develop low-cost housing rental stock; promote and facilitate home ownership; promote other forms of tenure for employees and contractors who do not wish to own homes in mining communities; introduce debt consolidation as a catalyst to home ownership for credit defaulters; address infrastructure deficiencies collaboratively with government; and secure additional land and funding options (Impala Platinum, 2016a).

Currently, promoting home ownership amongst its employees is Impala Platinum's key housing strategy. In addition, they aim to provide decent housing for the workforce, including contractors, by 2020. Based on company documents, decent housing is defined as stable, healthy, of adequate size, serviced with basic infrastructure in terms of water, sanitation and electricity, and within commuting distance of the workplace (Impala Platinum, 2016a). A housing manager in Rustenburg stated the following when explaining Impala Platinum's housing strategy:

“We want to promote homeownership to our employees' affordable homeownership so that the people have stable households and then also to get their families.... I mean as you know the mining environment usually...is people coming from other areas in the country, the husband stays here and the rest of the family stay somewhere else. Currently, we promote homeownership where the guys stay here with his family also we build other community centres that involves two big schools housing more than two thousand kids you know to make it viable for the people” (Interview 17, 2017).

Based on feedback from interviewees and company documents, Impala Platinum advocates for mine employees to reside with their families; the current housing strategy aims to promote home ownership in an integrated human settlement fashion. Such integrated human settlements must consist of mine workers and non-mine workers as residents. An example of such settlements are the Sunrise View and Platinum Village housing developments in Rustenburg (Impala Platinum, 2016a).

To ensure that these housing developments become integrated human settlements, Impala Platinum sells a portion of the housing project to the open market. Further, to promote integrated human settlements, the company builds schools in partnership with local government. Impala Platinum also provides education facilities to encourage mine employees to reside with their families. A representative responsible for housing at Impala Platinum mentioned the following:

“We sell the houses at cost so the company doesn’t make money out of the employees, it is an in and an out, so we finance the project with the sales we also sell at least ten percent of each project to the open market, we don’t want to create mine villages, we want to create a community where you add value, also when we sell to external people they pay more than what our employees pay that is to create market value for that property”
(Interview 17, 2017).

In comparison to AAP’s EAHS, when looking at Northam extension 6 housing development as an example, AAP has not promoted integrated human settlements to date. All residents at Northam extension 6 are AAP employees. Further, AAP financing mechanism for its EAHS ensures that residents at its housing developments remain AAP employees.

Currently, AAP purchases land on behalf of home owners in EAHS, and employees pay for this incentive by working for the company for a period of ten years, i.e. employees can sell the property only after ten years have lapsed. The amount used to purchase the land is payable when an employee resigns or is dismissed. This financing mechanism means property owners at AAP housing developments will remain mine employees for the foreseeable future, unless there is a change in housing policy.

Impala Platinum’s financing mechanism for home ownership is quite different from that of AAP, as the company provides interest-free loans to employees who want to purchase property in company housing developments. Mine employees use their interest free loan as a deposit for the property they want to purchase, and can thus apply for a reduced bond amount from financial institutions. Mine employees therefore pay reduced monthly bond repayments when compared to purchasing a property at market value. In addition, Impala Platinum pays a monthly housing allowance that contributes towards the bond repayment. Below is a case study extract for the Sunrise View housing development detailing how Impala Platinum incentivises employees to become home owners:

“Employees that opt to purchase property are paid a housing allowance that contributes to their bond repayments. The first housing development, Sunrise View, was approved in May 2007 and the following year (2008) the first residents of Sunrise View took occupation, nearly all of them were first time home owners. Sunrise View has approximately 1 700 units. The houses are two or three bedrooms and Implats employees paid between R225 000 and R265 000 for a house. The value proposition for employees is that the houses were priced below market rates, employees received an interest-free loan of R75 000, an interest rate of prime less two percent as well as life insurance. Instead of paying more than R4 000 per month, workers pay about R1 972 to become home owners. Consistent with government’s vision of integrated human settlements, Impala Platinum has also built a school in the development, the Sunrise View School” (Impala Platinum, 2016b, p. 1).

Based on the above, Impala Platinum provides numerous incentives to reduce the cost of home ownership for its employees. In addition, company documents indicate that the mining company has spent over R3.5 billion in improving housing and living conditions in South Africa since the inception of its housing strategy in 2007 (Impala Platinum, 2016a). Most of this expenditure has been spent on building new housing units, converting hostels, and purchasing land for future housing developments.

TABLE 5. IMPALA PLATINUM HOUSING AND LIVING CONDITIONS PROGRESS.

SOURCE: IMPALA PLATINUM HOUSING FACT SHEET.

	2016	2015	2014	2013	2012	2011
Houses built	2959	2788	2376	2049	1803	1640
Houses sold	2956	2878	2210	1883	1622	1057
Single units (through hostel conversions)	5243	5375	5375	5375	5375	4858
Family units (through hostel conversions)	308	264	264	264	264	198

In addition to the above home ownership financing mechanism, Impala Platinum is also implementing the FLISP in partnership with the DHS. Impala Platinum assists employees whose salaries range from R1,500 to R3,500 a month with an application for acquiring a FLISP grant from the provincial governments of Limpopo and North West. Key findings from this research indicate that AAP has struggled to attract lower income category A and B level employees to participate in EAHS, however the housing managers at Impala Platinum indicate that they have not encountered the same challenge. A representative from the housing department made the following statement:

“It is your A and B people that is the focus area, those are the people who we want to make homeowners, although everybody but these projects are specifically aimed the one thousand seven hundred units sold at Sunrise View is specifically aimed at them” (Interview 17, 2017).

According to Impala Platinum’s annual report for the 2016 financial year, the Rustenburg and Springs operations have a total workforce of 40,477 (Impala Platinum, 2016c), most of whom are based in Rustenburg. Considering the total workforce at Rustenburg and Springs operations and the 2,687 (Impala Platinum, 2016a) units built since the inception of Impala Platinum’s 2007 housing strategy, most employees have not participated in home ownership schemes. Therefore, conclusions cannot be reached that uptake amongst lower income A and B category employees has been high. Further, according to Impala Platinum’s sustainability report, 24% of employees in South Africa use company accommodation and 12% are on the company’s home ownership scheme (Impala Platinum, 2016d, p. 71). The balance of employees use private accommodation. These figures suggest that there is insufficient housing stock to allow all of Impala Platinum’s employees in South Africa to participate in home ownership schemes. Further, Impala Platinum has a significant housing backlog judging by the high number of employees in private accommodation.

Yet Impala Platinum has been recognised by the government for its efforts to improve the housing and living conditions of its employees (Impala Platinum, 2016d, p. 71). A representative from the Impala Platinum’s housing department indicated the following:

“If you look at the amount of houses which we had sold to our employees already and if you look at the financial models and our strategy, the Anglos, Anglo Coals, the Ashanti’s, the Kumba’s, the Sasol’s, all of them have visited us. Government institutions visited us, a lot of people went through our projects and looked at our presentations and look at our models and then they learned something out of it, some of them just to go the same way to implement at their operations which we do not have a problem with, because we want to promote homeownership amongst all people” (Interview 17, 2017).

Another key pillar of Impala Platinum’s housing strategy is to provide decent rental housing stock for mine employees who reside in private accommodation. Currently, 64% of Impala Platinum’s workforce in South Africa resides in private accommodation (Impala Platinum, 2016d), which is mostly in informal settlements and backroom rental units in local townships. Further, mine employees who reside in private accommodation utilise the LOA benefit, as at other mining companies such as AAP.

Considering the shortage of decent and affordable rental housing stock in the Rustenburg area, most of these mine employees reside in informal settlements and backroom rental units. In comparison to AAP, there are similar housing patterns at both mining companies with respect to employees residing in private accommodation. Consequently, Impala Platinum's housing strategy recognises the need to provide rental housing stock to cater for this category of employees. Currently, Impala Platinum has three rental housing options - mine employees can rent a company house, an apartment, or a flat at single quarters accommodation. According to company records, 8% of Impala Platinum's employees reside in company rental accommodation, which excludes hostel accommodation (Impala Platinum, 2016a). A housing manager based at Impala Platinum's Rustenburg operations made the following statement regarding the rental housing strategy:

“With regards to rentals we believe that people must pay for what they get, therefore, our employees rent our accommodation, it is not full market value, it is just below the market value. We categorise the accommodation and according to that they pay different rent, but it goes from R4,000 up to about R7,500; R2,730 is our lowest and our highest is about R7,100” (Interview 17, 2017).

Considering that only 8% of Impala Platinum's mine employees reside in company provided rental housing, this indicates there is a significant shortage of rental housing stock. Further, lower income employees may not be able to afford the current rental prices of company housing units. Based on these rental costs, an assumption is made that these rental housing units are targeted at middle to higher income level employees.

Based on the above, mining companies in the platinum mining sector have similar rental housing options. Findings from this research indicate that AAP's Amandelbult housing department also provides rental housing for middle to higher income level employees. Therefore, even though Impala Platinum has a strategy to increase rental housing stock, to date there has been no additional rental housing stock built. An additional housing strategy of Impala Platinum is to convert hostels into single and family housing units. Compliance with the Mining Charter is the primary driver behind this strategy. To date, the company has converted three hostels into 5,375 single units, and one hostel into 264 family units (Impala Platinum, 2016a). According to Impala Platinum's sustainability report, the mining company has achieved the Mining Charter 2014 milestones (Impala Platinum, 2016d, p. 98).

Impala Platinum has encountered several challenges that have limited the successful implementation of its housing strategy. The two main challenges are the inability of municipalities to supply bulk services and employee indebtedness. A housing manager at Impala Platinum's Rustenburg operations made the following statement regarding working with the municipality:

“There are always challenges working with the council, always. We always try to have a good and sound relationship, but it is sometimes difficult especially if you need to sign over your services. I mean we install all the services and then eventually you have to sign an agreement to say but now to take over the street lights and the parks and the refuse removal and stuff, and in many cases you know it is a problem, so you have to follow up and sometimes even do it yourself to a certain point in time and then we had an issue the other day with electrical supplies where you know Eskom have not been paid so we paid them directly on behalf of the local government, so yes, you have a lot of challenges in this regard” (Interview 17, 2017).

The second major challenge is employee indebtedness. There is a lot of interest from mine employees to participate in home ownership schemes, however many employees cannot acquire finance due to impaired credit records. According to housing department representatives, only 26% - 27% of applicants get approved for mortgages, which limits the successful implementation of home ownership programmes. Impala Platinum currently runs debt rehabilitation programmes to improve the credit worthiness of its employees, however.

The following section discusses the future housing strategies of Impala Platinum.

Impala Platinum: Future housing strategies

According to company records, the key pillars of Impala Platinum's housing strategy is to build additional housing stock, upgrade basic infrastructure in informal settlements, and investigate the use of different types of tenures and dwellings to replace informal settlements (Impala Platinum, 2016d, p. 72). In addition, Impala Platinum plans to partner with key stakeholders such as government and the Royal Bafokeng nation to implement development projects collaboratively. The objective of these partnerships is to build housing projects that contribute to fully functional communities that are constructed within a broader integrated spatial development framework (Impala Platinum, 2016d, p. 72).

Considering the above, Impala Platinum's housing strategy has made some progress in providing decent housing for its employees. The mining company's strategy to increase home ownership has reduced the housing backlog to some extent, however, the high number of mine employees residing in private accommodation suggests that a significant housing backlog remains. In addition, the housing strategy does not sufficiently recognise the overwhelming need for additional rental housing stock.

The following section discusses the housing strategies of Northam Platinum.

Northam Platinum: Current housing strategies in the post-apartheid era

This section discusses the current housing strategies of Northam Platinum. Since the colonial and apartheid era housing strategies of AAP and Impala Platinum have already been discussed above, this section only focuses on the current and future housing strategies of Northam Platinum. Based on the literature review, the housing strategies of platinum mining companies in the colonial and apartheid eras were relatively similar, hence there is no need for further review.

Northam Platinum is an independent mid-tier integrated PGM producer with two primary operations in South Africa (Northam Platinum, 2016). The mining company's two primary operations are the Zondereinde and Booyendal mines (FIGURE 1). The Zondereinde mining operation is situated in the province of Limpopo, between the towns of Northam and Thabazimbi, within the north-western limb of the Bushveld Complex. Further, the mining operation is located adjacent to AAP's Amandelbult mining operation (FIGURE 1). In 2016, the Zondereinde mining operation employed 6,083 full-time employees and 2,309 indirect employees.

According to Northam Platinum's integrated annual report (2016), the mining company's housing strategy is directed by legislation contained within the MPRDA and Mining Charter (Northam Platinum, 2016, p. 50). Currently, Northam Platinum is in the process of implementing a 5 year housing strategy that was approved by the board of directors of the company. The current housing strategy aims to provide decent accommodation for all of Northam Platinum's employees by the year 2020. According to Northam Platinum's company documents, the main objective of the housing strategy is the following:

“The strategy promotes home ownership as the preferred sustainable tenure option while acknowledging that rental, residence units and company accommodation will also be required. Northam cannot provide any one accommodation type in isolation, something that is further necessitated by the geographic diversity of our mines” (Northam Platinum, 2016, p. 50).

In addition to the above, Northam Platinum’s positions itself as a facilitator to create favourable conditions for its employees to live in decent accommodation. The housing strategy of the company includes using the company’s financial and other resources to create these favourable conditions. However, Northam Platinum’s also makes it clear that its housing strategy is influenced by economic conditions prevailing in the platinum mining industry. According to company documents, housing development programmes should be demand driven and within the constraints of the group’s financial position (Northam Platinum, 2016). Further, Northam Platinum’s housing strategy emphasises a commercially and financially prudent use of the company’s resources.

Key pillars of Northam Platinum's housing strategy include, refurbishment of existing residences at Zondereinde into single rooms, upgrade of the visiting quarters and the improvement of social amenities around the residences (Northam Platinum, 2016, p. 50). In addition, the strategy entails building home ownership and rental housing units for employees in the town of Northam. The strategy also includes introduction of various financing options to facilitate home ownership. In addition to reviewing company documents, a programme manager responsible for implementing Northam Platinum’s housing strategy was interviewed at the company’s corporate office in Johannesburg. The programme manager provided additional details about the company’s housing strategy and made the following statements:

“So, we’ve written a board paper which was accepted, and that then puts the accommodation strategy into policy. So, we have a couple of policy documents pertaining to the strategy. The first one is policies and procedures, housing loan for company developed stock. So that’s like a Platinum village or a sunrise view. Our own, we have three, we have Mojuteng, actually we have four, Mogwase and then we bought Extension 10 and Extension 21 in Northam which is currently agricultural land and we’ll start developing soon there. Okay, so then the second one is company housing stock purchase, so that is existing units, we have a mine village called Sataria which we’re now selling to our employees. Okay. And then the third one is open market purchase” (Interview 18, 2017).

Interviewee feedback provided additional information not currently present in Northam Platinum's annual integrated reports. The programme manager revealed that Northam Platinum plans to sell housing stock in its mine village at Zondereinde to its employees. Like Amandelbult mining operation, the Zondereinde operation has housing stock that its employees rent. In previous interviews, none of the housing managers at AAP or Impala Platinum's indicated any plans of selling property in mine villages to employees. Considering that these properties are in Zondereinde mine property, it remains to be seen what the level of interest from employees to purchase will be.

According to Northam Platinum's integrated annual report (2016), 2,408 employees at Zondereinde mining operation utilise the LOA and reside in private accommodation, while another 2,834 live in company residences. Like AAP and Impala Platinum, Northam Platinum has a high number of mine employees who utilise the LOA and reside in private accommodation. Having already established the critical shortage of rental housing stock in Northam. There is a high possibility that a high number of Northam Platinum's employees reside in back room rental units or at Smash Block informal settlement close to the Zondereinde mining operation.

Looking at Northam Platinum's housing strategy to convert former hostels into single accommodation units, the company's integrated annual report (2016) states that 2,440 rooms have been converted into single accommodation units. Further, the report states that 85% of hostel conversion has been achieved, and that "one person per room" target will be achieved by the end of 2016. What is referred to as company residences in Northam Platinum's company documents are former hostels or compounds that have been converted to single accommodation units. Like AAP and Impala Platinum, Northam Platinum's housing strategy also focuses on the conversion of former hostels into single accommodation units. However, Northam Platinum's housing strategy does not provide for the converting of hostels into family accommodation units.

Considering Northam Platinum's home ownership schemes, the mining company's major housing schemes are in the town of Northam. Below is an extract from Northam Platinum's annual integrated report (2016) explaining the Mojuteng home ownership scheme:

“Northam introduced the Mojuteng home ownership scheme to promote home ownership among its Zondereinde employees. The site is situated in Northam town, approximately 22km from Zondereinde. Employees are offered a home loan, a debt consolidation facility and a structured housing subsidy, which helps employees to increase disposable income levels and results in higher home loan approval rates. Of the available 54 stands, a number of new units were constructed in FY2016 and a total of 7 new housing units have been sold to employees during the financial year, increasing the total units sold to 398 since the start of the project” (Northam Platinum, 2016, p. 50).

Considering that Northam Platinum has 6,083 full-time employees at its Zondereinde mining operation (Northam Platinum, 2016, p. 45), the number of houses built at the Mojuteng home ownership scheme is currently insufficient. Further, Northam Platinum’s housing strategy promotes home ownership as the preferred sustainable tenure. Therefore, progress to date on facilitating home ownership appears to be insufficient based on company documents. In addition to home ownership schemes such as Mojuteng, Northam Platinum also supports full-time and indirect employees to purchase property in the open market. The mining company provides interest free loans to employees to reduce the home loan amount. Northam Platinum’s programme manager for housing provided the following explanation about their home ownership financing mechanism:

“So, let’s say a house costs R300 000, then the employee needs to go and borrow R200 000 from a financial institution, which is probably Standard Bank, SA Home Loan, FNB or ABSA. And if they grant him the R200 000, we give him R100 000 as an interest free loan. Okay? So, what happens there is he has one years’ holiday to start repaying his interest free loan. So therefore, every year in July, the mine gets increases, remember that’s the big loan negotiations now” (Interview 18, 2017).

Based on interview feedback, Northam Platinum’s home ownership financing mechanism is like that of Impala Platinum, the company provides employees with an interest free loan in addition to providing a home ownership allowance. However, the difference is that Northam Platinum provides its employees a holiday period of a year where they do not need to make loan repayments. Interestingly, Northam Platinum’s current programme manager for housing previously worked for Impala Platinum. Further, Northam Platinum’s housing strategy is relatively similar to that of Impala Platinum’s. The housing programme manager was asked whether he thinks Impala Platinum’s housing strategy can be transferred to Northam Platinum. He provided the following answer:

“I believe so and I’m trying my best. Because initially I thought it was so easy, because we did Impala. And Impala is the industry leader with regards to housing, so we can just transfer it. I still believe it is possible” (Interview 18, 2017).

Interestingly, Impala Platinum’s housing representatives indicated that other mining companies have visited them to learn how they implemented their housing strategy (Interview 17, 2017). Such organisational collaboration by mining companies presents an opportunity for further research into the impact of such collaborative initiatives.

Like AAP, Northam Platinum’s housing strategy has been constrained by a shortage of bulk municipal services in the towns of Northam and Thabazimbi. According to company documents, the mining company has started negotiations with local municipalities to secure the supply of bulk services. Currently, most of Northam Platinum’s housing developments are planned to be developed in Northam. The programme manager for housing indicated that the Thabazimbi municipality has many challenges currently. The programme manager provided the following details on challenges they face:

“So, I believe that Northam is the place to be current. Thabazimbi is facing a lot of challenges, because Kumba closed down you see. Their municipality is under, or was under administration, I met with them on Thursday and they have very real challenges of which Eskom is one. Unpaid debt, also they have a lot of infrastructure that they don’t recoup from, so they’re busy with a project where they’re starting to install the electricity meters, water meters, because you can think for yourself, if you install a water pipeline, you’re not recouping a cent, but the water’s going out. You have to pay Magalies, but you’re not getting anything back, it’s an unsustainable system. So, we looked at land, we actually identified six portions in Thabazimbi and we identified five portions in Northam. I had coffee with all the owners. I then did a report for our executive and gave him guidelines that if he bought land under a certain amount, I could make the housing work. If it’s above that amount, my costing doesn’t work and I could still give the house at a good value to them, but I won’t be able to break even, which is, remember, I have a mandate to build as many units as I can while breaking even and selling to our employees” (Interview 18, 2017).

In addition to the above challenges, Northam Platinum also faces a challenge of highly indebted employees who do not qualify for mortgage loans. Like AAP and Impala Platinum, Northam Platinum also has a debt rehabilitation programme for its employees. Further, company housing representatives indicated that financial institutions are not willing to extend credit to many employees and only select ones with good credit records.

Considering that AAP has struggled to attract lower income A and B category employees to buy into employee housing schemes, Northam Platinum's company representatives were asked how they intended to overcome this challenge. The programme manager gave the following explanation:

“Okay, so what we do there is we...our best unit, our stock unit, 90% of our development, let's say 80% is a 60 square 3 bedroom unit. We are sensitive to building 50 squares and 40 squares. So, there are two things that I'd like to explain to you here. The first one is you have to position the unit as aspirational, yet affordable. So, if I build units and I exit them at R700 000, they will say yes, those are so nice but I can't afford it. Therefore, you don't pay me enough. Okay? If I build a house for R300 000 which is a 34 square, they will say oh you know what? I have tjomies in government, I'd much rather go for a BMG house, or an RDP. So, you have to hit the sweet spot in between and they call it in South Africa the gap, gap housing, and that's what I wanted to ask you earlier. If you have R500 000, where do you stay? In Impala, or in Rustenburg, or in Jo'burg. You can either stay in a shack, or you can start buying houses from R600 000 to R700 000. And that's the problem, and that's where the mine should come in to assist government. So that's why we have the interest free loan, that's why we cut our 20% and we sell the units at cost to solve that gap housing problem” (Interview 18, 2017).

Based on the above, Northam Platinum's strategy is to offer A and B category employees financial assistance so they can afford houses in the middle income property market. Without the financial assistance, these employees would not be able to afford such houses.

The following section discusses Northam Platinum's future housing strategies.

Northam Platinum: Future housing strategies

According Northam Platinum's annual integrated report (2016), the future housing strategy of the company is to commerce with the construction of home ownership and rental units. Further, the company has acquired land in towns where its mining operations are located, and conducted geotechnical and environmental studies for construction to commerce. In the annual integrated report (2016), no details are given on the number of home ownership and rental units that will be built. In addition, the company plans to continue to review company owned housing to determine if it can be made available to employees for ownership.

Northam Platinum's representatives provided additional information on housing developments in the town of Northam. The company plans on extending the Mojuteng housing scheme and has acquired additional land for development. The programme manager for housing development at Northam Platinum provided the following information:

“Okay so this is Mojuteng, just the layout there that might interest you. Phase One is all the white blocks, and then Phase Two was the green blocks. So those stands were empty and we built there as well. Okay then we bought two portions of land, I'm going to quickly colour them for you N1, these for 70 units, it's going to be a micro-estate, so we're going to have a boundary wall around. We're looking to exit units close to R500 000. And then we bought N2 which is another 20 hectares, this entire triangle which we're going to do another 570. Okay. So now you know where, so you use the school as a reference point. So then with regards to the mega project of Jake and them, so this is Mojuteng that I just showed you, this is where we're now going to start construction, this triangle is what we're going to do next. Anglo has landed extension 17, they have the pit, which is Extension 12 and 13, and then they want to relocate Smash Block to this land. But there are still memorandums of understanding that need to be signed between government and the mines and so on” (Interviewee 18, 2017).

Northam Platinum housing representatives also indicated that AAP plans to relocate the Smash Block informal settlement to a portion of land in the town of Northam. This portion of land is adjacent to Northam Platinum's future housing developments. Further, Northam Platinum's housing representatives indicated they have an interest in AAP plans to relocate the Smash Block informal settlement and are prepared to provide assistance.

Considering Northam Platinum's housing strategies, the company has clear plans on how it intends to facilitate home ownership for its employees. Further, Northam Platinum does not have a high number employees as AAP and Impala Platinum, therefore, the company is better suited to achieve its 2020 targets. However, achieving its targets will depend on availability of funds from the company and overcoming shortage of bulk services in local municipalities.

The following chapter discusses contribution of the research findings to literature and implications of the research findings to practitioners and scholars.

5 DISCUSSION

The preceding findings chapter responded to the main research question on what characterises the supply and demand of rental housing in the platinum mining sector, and how do suppliers and customers currently connect? In this chapter, implications of the research findings for scholars and practitioners are discussed. These implications are discussed in four main sections. The first section discusses housing challenges in the mining sector. In this section, extant literature on community development and CSR is discussed in relation to the local platinum mining sector. Further, implications for scholars and practitioners are also discussed.

The second section of the findings chapter discusses the organisational responses to addressing housing challenges in the mining sector. Focus is given to organisational responses by state departments and mining companies. The third section discusses the implications of the research findings on the feasibility of adapting a CC business model for the low-income rental housing market. Lastly, a rental housing model to provide additional rental housing stock is proposed. The proposed rental housing model suggests an innovative approach to financing housing development in areas around mining operations.

5.1 HOUSING CHALLENGES IN THE MINING SECTOR

This section discusses grand challenges facing the mining sector, focus is given to the local platinum mining sector. The section then proceeds to discuss literature on company-state interactions, reference to extant literature on the South African platinum mining sector is made. Focus is given to interactions between platinum mining companies and local municipalities. Lastly, ethnographic case studies in the study area are discussed, comparison of this study's findings to these ethnographic case studies is made.

The global mining sector remains a contested space due its association with negative impacts such as environmental degradation and underdevelopment in affected communities (Owen & Kemp, 2012). Among the most prominent negative impacts associated with mining is the pollution of water and land resources, exploitative labour practices, and tax evasion to mention a few (Farrell et al., 2012; Kemp, 2010). The South African mining sector also has its own share of negative impacts associated with it, the most prominent being growing informal settlements around mining operations, labour tensions and aggrieved local communities.

These negative impacts are well documented in the literature on grand challenges, urban development challenges and community development facilitated by mining companies. One aim of this research has been to contribute to the literature on community relations and CSR in the mining sector through a case study of AAP's Amandelbult mining operation. Currently, there are no detailed studies that focus on housing and urban development challenges in the platinum mining sector. Extant literature has mainly focussed on community development, CSR, and legislative transformation of the mining sector (Kloppers & Plessis, 2008; Owen & Kemp, 2012; Sorensen, 2011).

Considering the platinum mining sector, there are pertinent urban development challenges in the sector owing to the ongoing shortage of decent housing for mine employees (Bezuidenhout & Buhlungu, 2011; 2015; Chinguno, 2013). These challenges are most observable in the Rustenburg region, where growing informal settlements and a shortage of housing stock characterise the mining town. The Amandelbult mining operation faces similar challenges, as there is a critical shortage of rental housing stock. The findings from this research identified that the limited capacity of municipalities to supply bulk services has prevented the expansion of housing projects by AAP's group housing unit. A shortage of skills and a lack of financial resources are the causes of this limited capacity at the municipal level. The inability of municipalities to deliver services is not a new phenomenon in South Africa, and has contributed to recent service delivery protests across the country (Bhardwaj, 2016).

Literature on company-community relations recognises the critical role that municipalities play in facilitating development (Hamann, 2004). The Anglo American group previously implemented a partnership with the Development Bank of Southern Africa (DBSA) to increase the capacity of municipalities in areas where the mining group operated (Anglo American, 2014). These partnerships were mostly set up to improve the supply of essential services such as water and electricity. Following the introduction of the MPRDA, mining companies have built schools, roads, clinics and other infrastructure in affected communities. Mining companies implement these infrastructure projects under the frameworks of CSR and community development (Gold et al., 2011; Hamann, 2003; Newell & Frynas, 2007). In most cases, local municipalities are then given the responsibility to oversee the management of this infrastructure, however a lack of skills and financial resources often results in underutilisation of this infrastructure.

Further, communities alone do not have the capacity to manage such infrastructure without the assistance of municipalities and government departments. There is an overarching need for mining companies to work with municipalities as partners to effectively implement initiatives to improve service delivery. From a governance and legislative perspective, municipalities are the custodians for delivering services to communities, therefore company-sponsored initiatives should ideally be in partnership or consultation with municipalities.

Mining companies have learnt valuable lessons in the Rustenburg area on how company-sponsored initiatives need to be managed in partnership with municipalities or government structures to achieve the desired objectives. An example is aligning company-community development initiatives with those of the municipalities' Integrated Development Plans (IDP), which guide the municipality strategy, planning, budgeting, and decision-making processes. Further, beyond aligning development initiatives with the IDPs of municipalities, mining companies need to fully understand the limitations of municipalities at an operational level, such an understanding can prevent unnecessary investment in infrastructure that municipalities cannot maintain. This was the case when AAP bought land and commenced with preparation to build houses for employees in Northam, only to find out the municipality did not have additional capacity to extend bulk services to these planned developments. This setback could have been prevented by conducting due diligence studies to better understand the capacity of the municipality. Careful alignment between the municipality's IDP and mining companies' development initiatives can prevent unnecessary wasteful expenditure of resources.

Considering that mining operations are often located in remote areas or small mining towns, service delivery limitations can negatively affect the efficiency of mining operations, however, these service delivery limitations cannot all be addressed through working only with municipalities or government departments; there is a need to collaborate with community-based stakeholders that often have a deeper understanding of community challenges.

AAP has been responsive to this need for collaboration and formed some key partnerships to work with community-based stakeholders. In collaboration with its recognised unions, AAP has established a housing forum which is a permanent structure that comprises both management and employees (AAP, 2015a). The employees are represented by their union leaders, and the structure is implemented at all AAP operations and meets monthly.

The main aim of the housing forum is to provide a platform on which both management and employees can engage, deliberate and discuss openly and transparently all matters pertaining to employees' housing and accommodation issues (AAP, 2015a). The housing forum also monitors all the housing initiatives of the company with a view to ensuring that the company complies with both mining and housing legislation in this regard.

The above multi-stakeholder collaboration is an example of a company-community initiative, where the company works with trade unions as community representatives. In the study area and the Rustenburg platinum mining region, trade unions occupy an influential position as community representatives. Trade union leaders often reside in local communities around the mining operations, therefore, these leaders have ground level knowledge of the community challenges.

Traditional authorities also represent community interests at the village level, as they occupy an influential position in communities around platinum mining operations (Bezuidenhout & Buhlungu, 2015; Mnwana, 2015). In the study area, the Bakgatla-Ba-Kgafela traditional authority represents the community interests of most villages in the area. Several ethnographic studies have been conducted on company-community relations involving these traditional authorities. Mnwana (2015) conducted a detailed ethnographic case study of Sefikile village in the Bakgatla-ba-Kgafela traditional authority area located close to AAP's Union mine (Capps & Mnwana, 2015). This study revealed complex struggles over land, mining revenues and public services. Further, the purchase of land and the building of informal settlements by migrant workers resulted in tensions between the local people and migrant worker communities.

In the Rustenburg area, the Royal Bafokeng traditional authority is the largest and most influential. This traditional authority oversees the administration of 29 villages, which are located above some of the world's largest platinum reserves (Mnwana, 2014). This traditional authority has implemented various development initiatives from the proceeds of royalties and dividends paid from its partnership with Impala Platinum. The Royal Bafokeng holding company is the single largest shareholder at Impala Platinum, and in fact has developed its own mining company called Royal Bafokeng Platinum which is listed on the Johannesburg Stock Exchange (JHB). The company-community relationship between Impala Platinum and the Royal Bafokeng nation is an example of a partnership that started at the village level and developed into a mining company that invests back into the community (Mnwana, 2014).

Feedback from study respondents interviewed at Welgeval village, which falls under the Bakgatla-ba-Kgafela traditional authority, reported similar tensions. A rental housing provider from the village gave feedback that the local chief previously requested to know the identities of people from outside the village, while migrant mine worker interviewees indicated they had been subjected to discrimination. The findings of the current research did not indicate there was widespread discrimination against migrant mine workers, yet the study was limited to residential areas outside the vicinity of Amandelbult, therefore definite conclusions cannot be drawn that discrimination against migrant mine workers is not common.

Recent studies identify academic, political and regulatory expectations as being drivers of company-sponsored initiatives to build company-community relations (Hamann, 2007). Scholarly literature categorises various drivers behind increasing efforts to build company-community relations, one of which is growing pressure for mining companies to become development partners in areas where they operate. Considering recent commodity price booms, mining companies have become very profitable organisations, thus expectations for greater community benefits have increased. Further, communities around mining operations still face considerable development challenges (Farrell et al., 2012; Kemp & Owen, 2013), which are most prevalent in developing countries. Governments and regulatory bodies have also introduced policies and legislation to regulate the mining sector, which differ from country to country depending on the commodity being mined and what the government wants to achieve through regulation.

In the South African mining sector, a wave of regulation came after the end of apartheid, this regulation was aimed at addressing the dismal safety record of the mining sector and decades of exploitative labour practices (Kloppers & Plessis, 2008; Sorensen, 2011). Findings from this research indicate that legislation informs the housing strategy of AAP. Group housing unit interviewees indicated that the main objective of the housing strategy is to comply with regulations contained in the MPRDA. The findings of this study partly corroborate earlier studies that identified institutional changes in the state as drivers behind increased commitment to CSR initiatives (Hamann, 2004). Regulation looks set to continue in the South African mining sector, as the MPRDA is currently undergoing an amendment process that seeks to bring clarity to the mineral rights application processes and facilitate the beneficiation of primary minerals.

Recently there has been a growth in literature focussed on the development challenges facing the platinum mining sector (Chinguno, 2013), due to the labour unrest witnessed in the Rustenburg area between 2011 and 2014. This literature has paid attention to how housing challenges influenced the recent labour unrest in the platinum mining sector. Key discussions in this literature are centred around the housing policies of mining companies post the apartheid era, with the key housing policy being the introduction of the LOA. Recent studies also identified the introduction of the LOA as a driver behind the growth of informal settlements (Bezuidenhout & Buhlungu, 2015; Chinguno, 2013). In addition, extant literature has claimed that mine employees are motivated to access the LOA benefit to supplement their wages.

Findings from these recent studies also show similar trends in mine workers' housing preferences as earlier studies conducted in the early 1990s showed; both sets of studies documented a decrease in the number of employees living in compounds, which was directly proportional to an increase in the number of mine workers securing alternative private accommodation outside of mine premises. A study on post-apartheid working relations around Lonmin mining operations provides the following statistics with respect to mine worker housing:

“The housing facilities of Lonmin comprise 1 798 houses and 544 family and 95 bachelor units. In addition, it has three hostel complexes for unskilled and semi-skilled labour (Lonmin, 2010). Lonmin thus provides accommodation to about 2342 of its 28 000 direct employees. This constitutes less than 10% of its direct workforce. The majority of the workers are in private accommodation which has exerted pressure on access to the few Lonmin houses” (Chinguno, 2013, p. 10).

The above statistics from Lonmin indicate a common trend amongst platinum mining companies, i.e. a shortage of company-owned houses that can provide housing for all mine employees. There are similar employee housing statistics at Amandelbult. The average number of employees at Amandelbult is 13,700, with the average number of employees on the LOA being 6,850, or 50% of the total workforce. The average number of employees who live in SAVs is 2,740, which makes up 20% of the workforce. The remaining employees live in company-owned or rented units, and employee-owned housing units. These employees make up 10% and 20% of the total workforce respectively.

At Lonmin and AAP, most mine employees who utilise the LOA fall within the lower-income categories. The value of the LOA is between R1,800 and R2,000 at most major platinum mining companies (Van Rensburg, 2016). Considering the shortage of rental housing stock, most of these mine employees can only afford housing in informal settlements or backroom rental units. These findings further indicate that available housing options determine employees' housing preferences.

Historically, there has always been a shortage of decent rental housing that mine employees could access in mining communities, and the factors that characterise the housing market around platinum mining operations have not shifted significantly since the introduction of the LOA. Extant literature and the findings of this research confirm that the shortage of rental housing stock continues to be a driver behind housing challenges. In addition, the demand for housing significantly exceeds available supply, thus there needs to be significant new housing stock added to the market to reduce the housing challenges that face the platinum mining sector. This new housing stock should ideally cater for the rental housing market, where demand is the highest.

The following section discusses the organisational responses to the challenge of growing informal settlements around mining operations and the shortage of housing stock.

5.2 ORGANISATIONAL RESPONSES

This section of the discussion chapter reviews organisational responses by mining companies and state departments in addressing housing challenges. Focus is given to AAP's initiatives of improving accommodation and living conditions of mine employees. The role of state legislation is identified as the main driver behind AAP's housing development initiatives. Secondly, the organisational responses of the DMR and Department of Human Settlements (DHS) are reviewed. The DMR is selected because of its regulatory role, and the DHS because it has existing programmes aimed at improving accommodation and living conditions in the platinum mining sector.

Mining companies and the Department of Mineral Resources

The findings chapter gave an overview of AAP's past, current and future housing strategies. Common across these housing strategies is the influence of state legislation in shaping the strategy, with the race-based policies of colonial and apartheid governments shaping the past housing strategies of AAP (Hamann & Bertels, forthcoming).

The MPRDA is the primary legislative document that guides the transformation of the South African mining sector. Three pillars of AAP's housing strategy seek to comply to legislation within this Act, namely phasing out SAVs, promoting home ownership, providing decent rental tenure options, and converting the LOA into a rental allowance (AAP, 2015a).

According to AAP's group housing unit, the company has managed to facilitate the conversion of compounds into single accommodation and family units. The Mining Charter milestones contained within the MPRDA set a target of converting or upgrading hostels or compounds into single and family units by 2014 (DMR, 2010). According to AAP's sustainability report (2015b), AAP has managed to comply with this milestone and has converted most compounds, while the complete phasing out of SAVs remains a future strategic direction for the organisation. However, considering that only 20% of employees live in SAVs at Amandelbult, the historical compounds are already being gradually phased out. Findings from this research indicate that SAV accommodation is not popular amongst employees, largely due to the lack of privacy and the poor quality of food served in the SAVs.

Other platinum mining companies are also actively converting or upgrading their compounds into single or family accommodation units. Extant literature indicates that the number of employees living in compounds or upgraded SAVs is also decreasing at other platinum mining companies (Bezuidenhout & Buhlungu, 2015; Chinguno, 2013). Considering the decrease in the number of mine employees living in compounds or upgraded SAVs, there is a major drive from the DMR for mining companies to facilitate home ownership. The housing and living conditions standard contained within the MPRDA states that mining companies must facilitate home ownership for employees. This emphasis on home ownership is based on mining operations being in remote areas and the exploitative history of the housing of black African migrant workers. Due to this legislative pressure, AAP's group housing unit has implemented various initiatives to facilitate home ownership.

The EAHS is the main home ownership initiative implemented by AAP's group housing scheme. With this scheme, AAP buys well-located residential land and then installs bulk infrastructure in these stands at its own cost. Stands are then allocated to employees to build their homes. Construction firms build the houses under supervision from the group housing unit.

Mine employees finance the building of the houses through the acquisition of credit in the form of mortgage loans from commercial banks. Thereafter, the HOA is granted monthly to employees, which assists them to pay off their mortgage loans. In addition, the group housing unit may assist qualifying employees to apply for a government housing subsidy. Employees whose salaries range from R1,500 to R3,500 a month qualify for this grant. To date, EAHS have been implemented in Seraleng in Rustenburg and Northam extension 6. These housing developments saw many mine employees becoming home owners for the first time.

Other platinum mining companies in the Rustenburg area have also responded to legislation requirements by implementing home ownership schemes, however, the marketing and financing structure of these housing schemes is different from AAP. A former employee who worked with AAP's group housing unit mentioned that other housing schemes, such as that of Impala Platinum, are based on building houses first and then selling them to employees. In these housing schemes, employees purchase ready built houses and have little choice in deciding their preferred finishes. These housing schemes are criticised as being high risk for mining companies, as they cannot guarantee that employees will purchase them.

In Rustenburg, a housing scheme had to be marketed to the public as there was not enough demand from mine employees. Representatives of AAP's group housing unit argue that the implementation of EAHS in partnership with employees is what makes the home ownership programme unique. Employees choose the stand and the size of house they want prior to building, and employees are also pre-screened to see if they qualify for a mortgage from financial institutions. This ensures that only employees who are in a good financial position can enter the EAHS. The AAP's group housing unit concludes that their housing scheme ensures 100% uptake and that no house is built without a buyer.

AAP's EAHS and FLISP housing programmes have been effective in facilitating home ownership amongst employees, and have received awards from the Department of Human Settlements in recognition of this (Anglo American, 2012). However, these housing initiatives have not significantly increased new housing stock, and have not been sufficient to significantly reduce the housing back log. The inability of municipalities to supply bulk services is one issue that has restricted the scaling of these housing programmes.

Another factor that has limited the scaling of the EAHS is employee indebtedness. AAP's group housing unit's representatives identified employee indebtedness as a limiting factor in increasing home ownership. In reaction to this challenge, AAP has implemented employee financial literacy and debt rehabilitation programmes. Employee indebtedness has been identified as one of the key drivers that led to the 2014 platinum strike.

From an organisational perspective, mining companies have reacted to address the pressing challenge of limited housing stock around their mining operations. However, in considering the beneficiaries of these housing programmes, they have not benefited the intended category of employees. At AAP's Northam extension 6 project, the main beneficiaries of EAHS were the middle to high income category of employees, yet the housing challenges affect lower-income employees the most.

The current housing strategy of AAP recognises this challenge and attributes part of it to migrant mine workers not having an interest in owning property in mining areas. An additional explanation is that some mine employees deliberately abstain because of their indebtedness, however, there is little evidence based on the research findings that suggests this. There is generally low interest amongst low-income migrant mine employees in purchasing property in mining towns, which could have also influenced the previously mentioned inability of some mining companies to sell houses to employees in the Rustenburg area.

Existing studies have also identified low interest from migrant mine workers to purchase property in mining areas (Bezuidenhout & Buhlungu, 2015; Chinguno, 2013). These findings call into question the current emphasis of home ownership in the MPRDA. Further, increasing the supply of decent affordable rental housing stock is seen as a more immediate opportunity that can reduce the number mine employees living in informal settlements. Considering that most platinum mining companies still source significant numbers of their workforce from labour sending areas, the underlying factors that characterise the housing market around mining operations will not change in the foreseeable future.

This research has indicated that there is a strong motivation amongst mine employees to improve their living conditions, however the context and circumstances of employees influence how workers enact this motivation.

There are contrasting differences in contextual circumstances between a local based worker and a migrant mine worker. These differences influence the housing preferences between migrant and locally-based mine employees. For this reason, the formulation of organisational responses should critically consider these contextual factors.

Recently, major platinum mining companies have undergone restructuring due to falling commodity prices (Faku, 2015; Yakovleva, 2015), including closing unprofitable operations which has resulted in job losses in some companies. AAP is one such company; recently, AAP sold its Rustenburg mining operations to Sibanye Platinum (AAP, 2016b), and has sold its other non-core mining assets. This current restructuring raises concerns about the ability of platinum mining companies to see through on the implementation of housing developments. Considering the sale of AAP's Rustenburg mining assets, questions arise if new owners of the mining operations will continue implementing existing housing programmes. Further, most business models of new entrants in the platinum mining sector are based on capital preservation and lean operations, which raises concerns about whether these new entrants will allocate enough capital for housing programmes.

However, the DMR gives final approval on the sale of mining assets, and commitment to the Mining Charter milestones is a prerequisite for transferring a mining right. Nonetheless, economic conditions often result in mining companies reducing budgets for development initiatives, regardless of state legislation. The findings of this research indicate that senior personnel strongly consider the financial position of their companies when making strategic decisions.

A further consideration is the capacity of the state's DMR to implement legislation. The introduction of the MPRDA signalled that there would be significant transformation of the South African mining sector, yet to date there has not been significant transformation in the sector. This calls into question the ability of the state to implement legislation. In the Mining Charter, the key transformation areas that have received attention from the state are ownership, community development, and improving the living conditions of mine workers. There have not been significant changes in ownership patterns of the South African mining sector (Kloppers & Plessis, 2008), ownership amongst historically disadvantaged South Africans (HDSAs) is still relatively low.

The low representation of HDSAs in ownership of the mining sector has received wide attention from the media and society, and mining companies have implemented various initiatives to increase ownership amongst HDSAs. Most of these initiatives are employee and BBBEE share ownership schemes, which are based on employees or empowerment companies purchasing shares by raising finance from financial institutions (Sorensen, 2011). The debt is then repaid through dividends from the purchased shares, however, due to the recent fall of mineral commodity prices, most mining companies have not been able to pay dividends.

Some employee share ownership schemes and empowerment companies had to exit empowerment deals due to a lack of funds to repay the debt. In such circumstances, the mining companies bought back the shares from employees or empowerment companies. Considering the above, the DMR has limited capacity to enforce transformation if the structure of empowerment deals is based on mining companies making profits and paying dividends.

Mining companies have also been criticised for not doing enough to develop communities in areas where they operate. The rise in the implementation of CSR initiatives is mostly a response to this criticism and state legislation. However, like increasing ownership of the mining sector by HDSAs, the DMR has limited power to decide which community development initiatives mining companies should undertake. Further, mining companies also argue that development is the role of the state. Some mining companies have resisted the expectation to be development partners in areas where they operate; they argue that they pay taxes and royalties, and that these should be used by the state to facilitate development.

Tensions look set to continue between mining companies and the state regarding who holds the primary responsibility for community development. Current legislation within the Mining Charter does not clarify clearly to what level mining companies invest in community development (DMR, 2010). Further, the MPRDA creates an expectation that mining companies must develop affected communities as an action to acquire a social licence to operate, yet the mining companies have interpreted this differently.

In considering the capacity of the DMR to implement legislation that compels mining companies to improve living conditions for mine workers, the state has limited powers in this area as well; the conversion of compounds into single or family accommodation units is the milestone that mining companies have made the most progress on. To date, increasing housing stock and facilitating home ownership has lagged, however, considering the previously mentioned challenges that inhibit implementing home ownership programmes, the slow progress is understandable. However, the onus still lies with mining companies to find innovative solutions to provide decent housing for all their employees.

Considering the exploitative history in the housing of black African migrant workers, there is an overwhelming need for mining companies to provide decent housing for all employees, yet the DMR has not compelled mining companies to urgently comply to legislation. Although the Minister of Mineral Resources has vested powers to suspend or revoke a mining licence due to non-compliance, the DMR is yet to exercise that power and suspend the mining licences of mining companies that do not comply; the DMR has only gone to the extent that it has considered suspending or revoking licences. This is unsurprising, as there are economic considerations such as job losses and loss of tax revenue. Considering the high unemployment rate in South Africa and sluggish economic growth, suspending a mining company's licence is not currently viable.

The above factors indicate that even though there is adequate legislation to facilitate the transformation of the South African mining sector, the DMR does not have sufficient capacity to implement legislation; the current economic climate has created an environment where mining companies can use economic conditions as a reason for missing transformation targets. Looking ahead, the DMR will need to disregard economic conditions in the country if it is to implement legislation and transform the mining sector.

Some opposition political parties have also called for the nationalisation of South Africa's mineral resources (Prinsloo, 2009), arguing that the majority white owners of South Africa's mining sector have no interest in seeing transformation in the sector, and continue to benefit at the expense of the black majority. Further, certain opposition parties and civil rights organisations argue that the poor living conditions of black mine workers calls for firmer state intervention.

Following the Marikana massacre in 2012 (Chinguno, 2013), calls for the nationalisation of the mining sector have further increased, however, the governing ANC has resisted these calls and argued that nationalising mines has not worked in other parts of the world. In Africa, Zambia nationalised its copper mines, but had to privatise them again due to poor management by the state. The private sector also opposes the nationalisation of the mining sector, arguing that the state does not have the capacity or the financial resources to purchase and manage mines.

The Department of Human Settlements

The Department of Human Settlements (DHS) is a key stakeholder involved in finding innovative solutions to address the housing challenges in the mining sector. In the platinum mining sector, the DHS is involved in various initiatives to upgrade human settlements and improve the living and working conditions of mineworkers. These initiatives often overlap or operate in partnership with the housing programmes of the platinum mining companies. The key focus areas of the DHS strategy are improving accessibility to basic services, improving housing conditions, and building municipal capacity.

Following the labour unrest experienced in the platinum mining sector in 2012, government, business and labour signed a social accord referred to as the Special Presidential Package (SPP) (South African Government, 2015). Part of the SPP includes an inter-ministerial committee for the revitalisation of distressed mining communities.

Subsequent to establishment of the SPP, the government, labour (trade unions), and business (Chamber of Mines) agreed on a framework to build a sustainable mining industry, which guides the upgrading of human settlements in mining towns to improve the living and working conditions of mineworkers. The first focus area of the SPP was the Bojanala district municipality in the North West province, which comprises the Rustenburg, Moses Kotane and Madibeng local municipalities (FIGURE 1). The case study area for this research is located close to the greater Bojanala district area; geographically, Amandelbult is in the province of Limpopo close to the North West provincial border, and the Moses Kotane local municipality is located along this border. This local municipality provides accommodation for many employees from Amandelbult, who are mostly local Tswana people or migrant mine workers. These employees live in the local villages that fall under the Moses Kotane local municipality, such as Sandfontein and Welgeval.

For the Moses Kotane local municipality, the DHS has identified four key areas of intervention: informal settlements, the backlog in basic services, homes in traditional areas, and rental accommodation for migrant miners. Table 6 below summarises the proposed interventions.

TABLE 6. DEPARTMENT OF HUMAN SETTLEMENTS INTERVENTIONS.

Focus area	Proposed intervention
Informal settlements	<ul style="list-style-type: none"> • Interim services to be provided to all informal settlements • Informal settlement upgrading to be undertaken at existing informal settlements based on incremental upgrading • State investment to focus on social facilities and public amenities
Backlog in basic services	<ul style="list-style-type: none"> • Basic service backlog connections to be undertaken in traditional areas
Homes in traditional areas	<ul style="list-style-type: none"> • Support provided to households to access a property and build in a tribal authority area • Review transport accessibility to urban node and work opportunities
Rental accommodation for migrant miners	<ul style="list-style-type: none"> • Mining companies incentivised to provide residential rental apartments and rooms through developers and households in traditional areas

The DHS works with human settlement departments within local municipalities to implement national programmes such as the SPP. The DHS strategy for informal settlements in the Moses Kotane local municipality is to provide interim services and gradually upgrade the settlements, however, informal settlements in the local municipality do not provide accommodation for a significant number of Amandelbult mine employees. The two main informal settlements where Amandelbult employees reside are at the Smash Block and Northam informal settlements, which fall under the Thabazimbi local municipality. Feedback from the interviewees and a review of archival data did not indicate current plans to upgrade these informal settlements. Further, AAP representatives indicated that the Limpopo provincial government classified the Smash Block informal settlement as uninhabitable and categorised it for relocation.

A second focus area for the DHS is to install basic services in traditional areas in the Moses Kotane local municipality. These traditional areas comprise of village households and backroom rental units, where there is a massive shortage of basic services such as water and sanitation. During the data collection phase of this research, I observed the shortage of water in these traditional areas, where residents obtain water mainly from boreholes and municipal water taps. The study respondents also mentioned that water had been cut off from some municipal taps.

In addition, the municipality does not collect significant revenue from municipal rates due to the high number of households with low economic activity (Statistics South Africa, 2011a, 2011b). During apartheid, traditional areas around mining operations fell under the administration of the homeland states (Mnwana, 2014). In the study area, Bophuthatswana was the homeland state that administered the traditional areas. The apartheid government neglected the homelands and there was minimal development of communities in these areas. Further, the group housing unit at AAP identified the lack of basic services in village communities as a limiting factor to supplying decent housing for mine employees.

The third focus area is the upgrading of backyard dwellings. The strategy is to formalise backyard dwellings through providing planning support for the construction of formal structures. An incentive is payable to property owners once a formal structure is built and an informal one is demolished. The upgrading programme targets households where there are existing backyard dwellings or where the size of the property can accommodate backyard dwellings.

The fourth focus area is increasing rental housing stock for migrant mine workers. This strategy aims to build partnerships between mining companies and private developers to build rental housing units. The DHS provides the FLISP subsidy as an incentive for mining companies and developers to build rental housing stock, however, most migrant mine workers do not qualify for the FLISP subsidy due to their earnings being above the salary range of R1,500 to R3,500 required to qualify. (The salaries of mine workers have increased due to recent salary adjustments and the payment of various incentives.)

The above DHS interventions indicate that the department is aware of the housing challenges around platinum mining operations, and there has been greater state intervention following the labour unrest in the platinum mining sector between 2012 and 2014.

Further, looking at programmes such as the FLISP subsidy, the DHS has developed innovative solutions to address the housing challenges. The findings from this study indicate an alignment between the current DHS strategy and AAP's housing programmes, however, significant challenges still inhibit the implementation of the DHS housing programmes; the key challenge is the limited capacity of DHS units within local municipalities, which require high level technical and financial skills to implement DHS programmes successfully. To date, mining companies have had to intervene and provide these skills to municipalities to ensure the provision of services. Tensions are likely to emerge if mining companies continue playing the role of the state by providing services to communities. To manage these potential tensions, mining companies should form partnerships with municipalities that are project specific and guided by clear roles and responsibilities.

5.3 CONSIDERATIONS FOR A COLLABORATIVE CONSUMPTION RENTAL HOUSING MODEL

This section discusses considerations for the adaptation of a CC business model for the rental housing market. Innovative aspects of CC business models that can be adapted for the rental housing market are discussed.

The primary research question for this study is to define what characterises the supply and demand of rental housing in the platinum mining sector, and how suppliers and customers of rental housing connect. This question aims to determine the feasibility of innovative responses such as the adaptation of CC business models for the rental housing market. CC business models are characterised by the coordination of the use of resources such as living space, manpower or vehicles commonly through web-based information technologies (Mair & Reischauer, 2016). Further, CC business models involve coordinating the acquisition and distribution of a resource for a fee or other compensation (Belk, 2014).

Based on the accommodation sharing practice in the backroom rental housing market, there are similar characteristics between this market and CC-based business models such as Airbnb. Airbnb is a CC business model based on an online platform through which ordinary people rent out their excess housing space as accommodation for travellers (Guttentag, 2013). In this case, the similar characteristic is that backroom rental housing providers in local villages also rent out excess housing space in their backyards.

Similar to Airbnb hosts that provide accommodation for travellers, rental housing providers provide cost-saving accommodation without complicated lease agreements for mine employees. Further, Airbnb hosts and rental housing providers share the same motivation of wanting to make additional income from renting out excess housing space.

There are also distinct differences between the accommodation offerings of Airbnb hosts and rental housing providers, as Airbnb hosts provide accommodation for short periods of time to mostly tourists and business travellers, while rental housing providers accommodate mine employees for longer periods of time. The other difference between the two accommodation markets is the operating environment. The rental housing market around platinum mining operations is largely informal and caters for lower-income employees, and the market is uneven with demand significantly exceeding supply.

The findings from this research study indicate that rental housing providers do not make use of any advertising methods to connect with potential tenants; rather, they rely on peer to peer sharing of information. In contrast, the Airbnb market caters for the higher income accommodation market; most Airbnb accommodation space is offered in upmarket residential areas in proximity to urban areas. Further, the Airbnb market relies heavily on web-based information technology platforms to connect hosts and travellers, and travellers have a variety of accommodation options and prices to choose from (Guttentag, 2013; Zervas, Proserpio, & Byers, 2014). In contrast, there are limited accommodation options available in the backroom rental market - the one room bachelor unit is the most common rental unit. In addition, potential tenants need to visit a unit if they wish to see how it looks, as rental housing providers do not currently use technology applications to advertise their units.

In the study area, the Moses Kotane local municipality recognises the existence of backroom rental units in traditional areas and villages. In partnership with the DHS, there are interventions planned to upgrade the backyard dwellings through the provision of incentives for property owners to build formal structures. The aim of the intervention is to eradicate informal structures such as shack backyard dwellings, however, most of the backroom rental units visited during the study were formal housing structures built with bricks and formal roof structures. What is informal about these rental units is they do not have professional plumbing installations.

From a regulation perspective, Airbnb and the backroom rental housing market operate in contradiction of regulations in some locations. In many parts of the world, Airbnb is in breach of short-term rental regulations (Martin, 2016), primarily because Airbnb hosts provide short-term rentals in areas demarcated for residential housing not meant for business accommodation. Most Airbnb hosts operate from their main residence and hosting tourists and business travellers in these premises regularly conflicts with regulations. Similarly, municipalities in mining towns regulate the building of backroom rental units on existing properties; to build additional structures on an existing property requires municipal approval for the installation of additional services such as water, sanitation and electricity. However, many Airbnb hosts and backroom rental housing providers overlook this regulation; this disregard of regulations is what has characterised disruptive CC business models such as Uber and Airbnb. CC business models are largely associated with disrupting existing business models by offering innovative solutions that meet customer needs. To this end, Uber redefined the transportation of commuters and the relevance of owning a vehicle.

Considering communication and connecting methods, CC business models connect users through Web 2.0 platforms (Guttentag, 2013). Flagship CC business models such as Uber and Airbnb use these platforms to connect end-users and charge membership or usage fees. Considering the rental housing market around platinum mining operations, most end-users connect through informal peer to peer networks. In the study area, the mine employees indicated that they rely on their work colleagues and friends to connect with rental housing providers. Peer to peer sharing of information is most practised by low-income mine employees who access the LOA and rent private housing. The findings of this research further indicate that it is mostly current tenants who distribute information on available rental housing, however, peer to peer networks appear to be most effective between people who know each other and work at the same mining operation. Further findings indicate that new recruits often reside in informal settlements before they secure employment; it is often after securing employment that new recruits acquire information on alternative housing options from colleagues.

The suppliers of rental housing space also rely on peer to peer networks to connect with potential tenants, and backroom rental housing suppliers benefit the most from these networks. Currently technology-based platforms are not used by either the suppliers or consumers of rental housing space. Considering the shortage of rental housing stock in the study area, there is no evidence that indicates suppliers and consumers struggle to connect with one another.

Generally, connecting and communication methods are largely informal and require knowledge of the local area to be able to locate places that offer rental housing. An exception is the formal communication relationship between the Amandelbult housing department and estate agents. The housing department maintains a database of houses it rents from estate agents on behalf of mine employees, and when there is a need for additional housing, the department contacts the estate agents for information regarding the availability of rental housing stock. Employees must physically visit the housing department to access this information, or mine employees acquire information through the human resources department.

Looking at transaction methods, the payment of usage fees occurs mainly through electronic payments in CC business models, the most common of which are credit card payments. Uber and Airbnb are examples of CC business models that facilitate payment through registering credit card details on their platform, however, Uber recently introduced cash payments to cater for the cash economy market. In the platinum mining sector, lower-income rental housing transactions are mostly handled through cash. The research findings from this study indicate that some tenants pay through the electronic transfer of funds, however, these tenants are in the minority. For tenants living in company-owned or rented housing, AAP deducts rental payments directly from their salaries. Another transaction handled through electronic payments is payment of the HOA to financial institutions that have granted employees mortgages. Financial institutions offer reduced interest rates to employees who pay their bonds through salary deductions; this measure was introduced to reduce the risk of defaulting on bond repayments.

In the long run, AAP's group housing unit strategy is to phase out the LOA and introduce a rental allowance. Currently it is not clear what the value of the rental allowance would be and how it would be paid to employees. Previously, property developers have made proposals to AAP's group housing unit to receive employees' LOAs directly from the company in return for building rental housing stock.

Group housing representatives indicated that they considered the proposals from developers, however, they could not implement them due to budget constraints. Looking ahead, the payment of such a rental allowance to property developers could provide an incentive for the development of housing stock specifically for the rental housing market. However, there remains an entrenched right for mine employees to choose their own private housing without forfeiting company benefits. Directly paying a rental allowance to a developer would infringe that right, unless it were the choice of the employee.

Given the South African mining industry's history of exploitative labour practices, any infringement of workers' rights will receive significant resistance; unless there is overwhelming agreement between labour, business and government. Innovations that take away the right of choice of employees are unlikely to be effective in increasing rental housing stock. To date, AAP's housing programmes targeting low-income employees have not achieved the desired uptake. The research findings from this study showed that mine employees select specific housing options based on their individual circumstances. Further, the housing market is complex with multiple stakeholders. To date, this complexity has been considered by mining companies and the government in finding innovative solutions to address housing challenges.

Based on the above considerations, there are opportunities to adopt aspects of CC business models to build innovative solutions for the rental housing market. The first immediate opportunity is adopting Web 2.0 platforms to connect consumers and suppliers of rental housing. Even though the current connecting methods seem to serve the rental market efficiently, there is an opportunity to improve these connecting methods. The current peer to peer networks that connect the rental housing market have some disadvantages, including that to be able to secure information from these networks, one must know a person who has access to information on rental housing. For new recruits or migrant workers who do not work in the mining sector, connecting with these individuals may prove difficult.

Secondly, those looking for rental housing must rely on the property description given by peer to peer networks for specific information such as availability of services and additional installations. Without photos, potential tenants must rely on verbal descriptions given by their peers. Alternatively, a potential tenant must travel to view a rental housing unit, which can prove to be expensive for low-income mine workers.

Considering these disadvantages, there is a clear need to centralise information on the rental housing market, using databases that store information on the various rental housing options available. In the study area, such a database should contain information on backroom rental units, as well as rental units offered by Amandelbult housing department and estate agents. Such a database can increase the choice of housing options that mine employees have access to. Further, with a centralised database, rental housing providers can provide detailed information for potential tenants and improve matching between suppliers and customers.

There are also entrepreneurial opportunities to adapt matchmaking functions of CC business models for the rental housing market. Such matchmaking services could be developed using web-based technologies. In the study area, there is an opportunity to formalise the backroom rental housing market and offer this housing stock to company housing departments.

A matching service can provide a platform where backroom rental housing providers can connect with company housing departments. Considering that the DHS already has a programme to upgrade backroom rental units, these units have the potential to meet basic human settlement standards. Further, considering the low-levels of economic activity in villages and township areas around mining operations, a formalised backroom rental housing market can increase economic opportunities for local communities.

Despite the above opportunities for adapting a CC business model for the rental housing market, currently, the critical challenge is not connecting suppliers and customers, but the shortage of housing stock. To adapt a CC business model for the rental housing market will require significant housing stock, which should ideally exist within a balanced market where rental housing units are vacated and occupied frequently, however, the occupancy rates of rental properties are very high in the study area at the moment. Further, due to the shortage of rental housing stock in the study area, tenants often stay for long periods of time without moving. This long occupancy of rental housing units results in limited opportunities to introduce platforms to connect new potential tenants with rental housing providers. In addition, the current methods that connect suppliers and customers of rental housing appear to serve the market quite efficiently, therefore, innovative solutions should rather be targeted at increasing the supply of rental housing stock at the moment.

Ideally, such innovative solutions should consider developing housing stock in existing communities that already provide housing for mine employees, and new developments should ideally be located close to mining operations.

The following section discusses a rental housing model that can be implemented to increase the supply of rental housing stock using community-based assets. This rental housing model considers AAP's Amandelbult mining operation as an implementation site.

5.4 PROPOSED RENTAL HOUSING BUSINESS MODEL

This section provides details of a proposed innovative financing mechanism to finance rental housing developments. The section discusses the current financing mechanisms of home ownership schemes at AAP. Thereafter, the section discusses innovative financing opportunities in the current EAHS landscape. The section then moves on to discuss the value proposition of the proposed innovative financing mechanism.

Then an overview of the operational aspects of the proposed rental housing business model are discussed. The expected challenges in the implementation of an innovative financing mechanism are considered. Lastly, prototyping considerations are discussed.

The situation

Currently, AAP provides a HOA benefit to facilitate home ownership for its employees. This HOA benefit is paid to employees who have purchased property in proximity to AAP's mining and processing operations. The general rule applied to qualify for a HOA benefit is that the property must be within a 50km radius from a AAP mining or processing plant operation. This property can be in the form of land, a house or a flat. The value of this HOA varies depending on the income level of a mine employee, i.e. the value of the HOA increases with an increase in the income of an employee.

At AAP, low-income employees are categorised under the A and B band income levels, while middle to higher income workers are categorised under the C, D and E band income levels. For an employee to qualify for a HOA benefit, they must purchase a property that will be financed by a financial institution through a mortgage loan.

Once ownership of the property has been transferred into the name of the employee, payroll services will activate the monthly payment of a HOA benefit with the employee's salary. This benefit is intended to assist the employee with the monthly bond repayment. Alternatively, financial institutions can deduct the monthly bond repayment directly from the employee's salary through an agreement between the employee, payroll services, and financial institution.

At Amandelbult mining operation, most mine employees who utilise the HOA benefit are home owners that own property in the neighbouring residential areas of Northam, Thabazimbi, Rustenburg and Mogwase (FIGURE 1). Mine employees either purchase property in existing residential areas or in areas demarcated for EAHS. In the study area, numerous mine employees from Amandelbult mining operation bought houses at Northam extension 6 EAHS through utilising their HOA benefit. Currently, 20% of the Amandelbult workforce utilises the HOA (FIGURE 3).

The opportunity

AAP's Amandelbult mining operation has an average workforce of 13,700 permanent employees, of which only 20% utilise the HOA benefit (FIGURE 3). This means that only 2,740 employees access the HOA benefit. Considering that the value of the HOA benefit can range between R3,000 and R6,000, there is a potential R32,880,000 revenue that can be accessed monthly to finance property repayments. This potential revenue is calculated using the remaining 80% of the workforce not utilising the HOA benefit. A HOA value of R3,000 per month is used for this estimate. However, considering findings from this study, it is currently not clear how many employees would purchase property if there were sufficient stock available. Therefore, the potential revenue would only be accessible if there were sufficient housing stock for each employee to purchase a property.

Currently, most mine employees who utilise the HOA benefit are middle to high income employees in the C and D income level categories. Thus, an opportunity exists to develop investment properties for this category of mine employees who do not currently utilise the HOA. This investment property will be marketed to C and D level employees as investment property that they can purchase using their HOA.

This investment property would be in the form of rental housing units that are low-cost bachelor units built with low-cost building materials. This rental housing stock will be developed primarily for rental by low-income category A and B employees.

Through utilising their HOA benefit, C and D income level employees can purchase property that will be repaid by their HOA. Further, the property will generate additional rental revenue. Considering that C and D income level employees qualify for higher HOAs, these employees are positioned to utilise the HOA to purchase bigger properties, which can be designed to include multiple bachelor rooms that can be rented out as individual units. These individual bachelor units would have separate bathroom and kitchen facilities to meet decent housing standards as stipulated by the DMR and DHS.

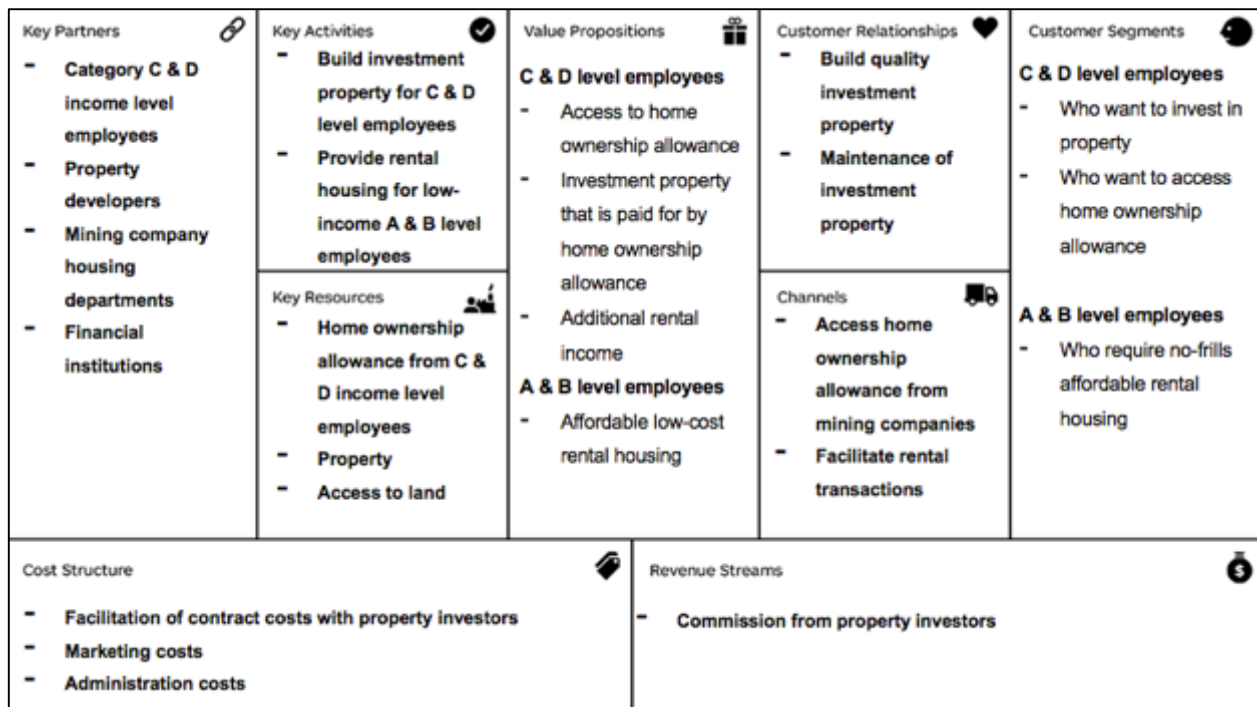


FIGURE 6. BUSINESS MODEL CANVAS.

The above factors indicate the favourable conditions for the establishment of a for-profit rental housing social enterprise. This rental housing social enterprise will function as a collaborative enterprise with key stakeholders comprising financial institutions, property developers, and mining company housing departments (FIGURE 6).

Based on the business model canvas (FIGURE 6), key partners are category C and D employees, mining company housing departments, property developers, and financial institutions. The key activity of the enterprise is building and managing rental housing property. Key resources required is access to employees HOA and access to land. The cost structure of the enterprise will include facilitation of contract costs, marketing, and administration costs. Revenue for the enterprise will be generated through commission charged to property investors. The enterprise will focus on building customer relationships through building quality rental property. The enterprise business model has two sets of customer segments, the first segment is C and D category employees who want to invest in property through utilising their HOA, the second segment is lower-income A and B category employees who require no-frills affordable rental accommodation.

Value proposition

The social housing enterprise will provide value to four key stakeholders - mine employees, AAP's company housing department, financial institutions, and property developers. For C and D income level mine employees, the enterprise will provide an opportunity for them to invest in property without using their own funds, and the enterprise will manage the investment property and pay additional rental income to the employees.

The enterprise will further provide low income category A and B employees with low-cost rental properties, which will be fitted with bathroom and kitchen facilities to gain a competitive advantage over backroom rental units. The enterprise will also provide the Amandelbult housing department with much needed rental housing stock.

For financial institutions, there is an opportunity to increase their loan book through granting mortgage loans to property investors. Further, financial institutions can reduce the risk of loan defaults by extending credit to employees who receive additional income through the HOA. Lastly, partnering with property developers will provide employment and business opportunities for local communities. These opportunities will be in the form of procurement opportunities to supply materials and services for the construction or renovation of investment properties.

Operations

The social housing enterprise will be registered as a for-profit proprietary limited company that provides innovative financing mechanisms to develop investment properties and provide low-cost rental housing. The primary activity of the social housing enterprise will involve identifying suitable land or existing property that can be developed as low-cost rental housing units. Through partnerships with property developers and financial institutions, the enterprise will design and create a portfolio of investment property. This portfolio of investment rental properties will be marketed strategically to C and D income level mine employees, in partnership with AAP's housing department.

After an adequate number of mine employees have registered, a first phase of screening will be conducted by the social housing enterprise to check the income level of the potential property investors. In addition, the mine employees will be screened for creditworthiness and if they can afford to purchase property. A second phase of screening will be conducted by the financial institutions.

After this phase of screening is complete, mine employees who have been successfully screened will be provided with an opportunity to select their preferred investment property from the portfolio. The social housing enterprise will then liaise with the company housing department to authorise payment of the HOA, after which contractual agreements will be entered between the social housing enterprise, the mine employees and the financial institutions.

Thereafter, the approved mortgage finance will be secured from financial institutions to commence with construction. Construction of the investment rental property will be carried out in partnership with reputable property developers.

Challenges

Various challenges have been identified that can limit the success of the social housing enterprise. The first challenge is the shortage of bulk municipality services and the restrictions on building additional property in towns such as Northam, Mogwase, and Thabazimbi. The availability of bulk services will be critical to develop additional rental housing stock that can reduce the current shortage. However, findings from this study indicate that AAP's group housing unit is working with various stakeholders to address this challenge.

The second challenge is employee indebtedness; considering that the financing mechanism of the enterprise is centred on accessing the HOA, the inability of mine employees to qualify for mortgage finance limits the feasibility of this business model. In addition, there is concentration risk for financial institutions of extending credit to a high number of individuals who are concentrated in one area and work in the same industry. Following recent industrial action in the platinum mining sector, financial institutions may be reluctant to extend credit to a high number of individuals employed in the mining sector.

Prototype

The above innovative financing mechanism is a conceptual proposal that needs prototyping to determine its feasibility. Pertinent aspects of the business model that require prototyping include testing the appetite amongst C and D income level employees to invest in property close to mining operations. Further, additional prototyping is required to determine the appetite of financial institutions to extend credit in the form of mortgage loans to mine employees to finance the social housing enterprise key activities.

Ideally, prototyping of the above business model should have been conducted after the data collection phase of this research. However, due to time constraints, prototyping could not be completed. In the future research areas chapter, it is recommended that additional research should be conducted to test the feasibility of the proposed rental housing social enterprise.

6. CONCLUSION

Shortage of decent rental housing options for mine employees continues to characterise the South African platinum mining sector. To date, initiatives by mining companies to facilitate home ownership and increase rental housing options have had limited success. Such limitations in company initiatives are exacerbated by the complex nature of the housing market in the platinum mining sector. Through a case study of AAP's Amandelbult mining operation, this research investigated the rental housing market in communities around this mining operation. Primarily to determine factors that drive the demand and supply for rental housing stock, establish how customers and consumers currently connect, and to determine how CC business models can be adapted for the low-income rental housing market.

This research confirmed that there is a critical shortage of rental housing stock in the study area, and that consumers and customers connect through informal peer to peer networks. Further, this research identifies exploring innovative financing options to finance rental housing developments as a more immediate opportunity than adapting a CC business model. In addition, this research contributes to scholarly literature on community development and CSR by identifying a gap for detailed studies on housing challenges in the mining sector. Extant scholarly literature on community development and CSR in the mining sector has not given enough attention to housing challenges and innovative responses to address these challenges.

Finally, this research also highlights the various financing mechanism utilised by mining companies to finance employee housing developments. The exploration of innovative financing solutions for housing development in the mining sector has implications for both practitioners and scholars.

7. FUTURE RESEARCH AREAS

This research investigated the factors that characterise the supply and demand of rental housing stock in the platinum mining sector, and how suppliers and customers connect. It does not explore to detail the underlying social conditions that influence mine employees housing options. Factors such as the low interest amongst migrant mine workers to participate in home ownership schemes can be further investigated. Further, considering the high number of migrant mine workers in the platinum mining sector, future studies should consider investigating the social conditions in labour sending areas where migrant mine workers are sourced.

Future research areas can also focus on the various financing mechanisms utilised by mining companies to finance employee home ownership schemes. Currently, various platinum mining companies have different financing mechanisms for home ownership schemes. Some of these financing mechanisms have been successful, whilst others have had limited success. Future studies can focus on how these financing mechanisms are structured. Further, such studies can investigate opportunities for additional innovative financing options. Future research can also focus on factors that cause high indebtedness amongst mine employees. In this research, mine employee indebtedness was recognised as a major challenge that limited the implementation of mining companies home ownership schemes.

Future research studies can consider investigating partnerships and collaboration efforts between mining companies to address housing challenges. This research indicated that mining companies are prepared and have collaborated to address housing challenges. Such studies can contribute to extant literature on partnering for development and company-community relations.

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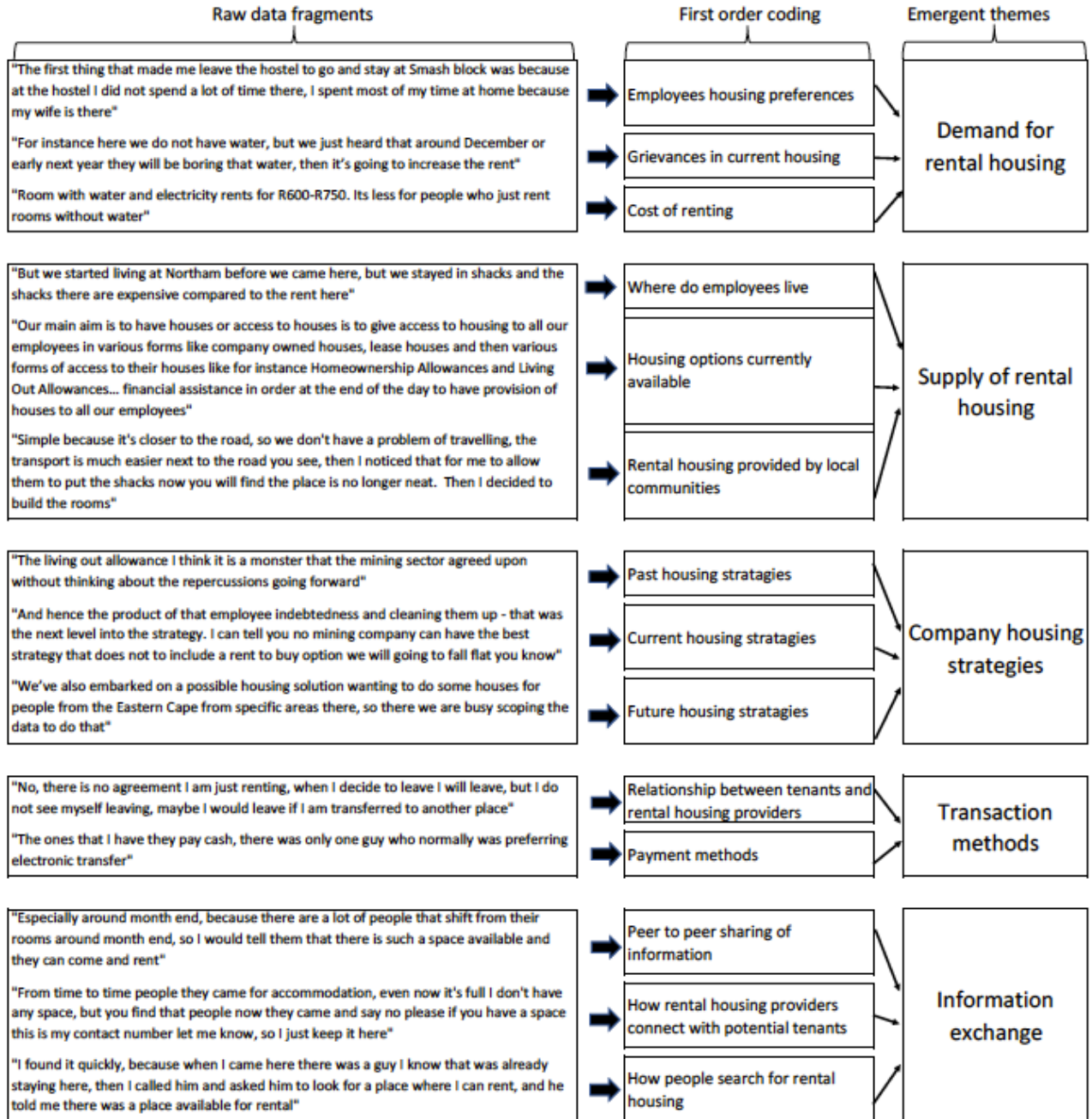
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9. APPENDICES

APPENDIX A: DATA ANALYSIS PROCESS



APPENDIX B: INTERVIEW PROTOCOL

Case study research questions

Research questions	Sources of evidence
What characterises the supply and demand of rental housing around platinum mining operations?	Interviews, company documents
How do suppliers and customers of rental housing currently connect?	Interviews, direct observation, documentation
What housing options are currently available for mine employees?	Company documents, interviews, observation
What influences the housing choices of mine employees?	Interviews
What are the required design specifications for an inclusive rental housing business model?	Interviews, documentation

Interview protocol for mine employees

Building rapport phase	
Introduction of myself and research project	
Discussion of research ethics	
Interview question	Research question addressed
Apprehension phase	
Can you tell me where you currently live?	What housing options are currently available for mine employees?
For how long have you been living there?	
Can you tell me what made you choose to live there?	
Are you committed to any lease agreement? If yes, how long is the agreement for?	What influences the housing choices of mine employees?
Exploration phase	
Are there other additional factors that make you live there?	What influences the housing choices of mine employees?
How did you find out about this place of residence?	How do suppliers and customers of rental housing currently connect?
Did you experience any difficulty in looking for housing?	
How do people in this neighbourhood generally find out about available housing space?	
Do you pay anyone for your housing space?	What are the required design specifications for an inclusive rental housing business model?
Can you tell me how much you pay for your housing space?	
What method of payment do you use to pay for this housing space?	
Co-operative phase	
Are you satisfied with your current place of residence?	What influences the housing choices of mine employees?
What do you like about where you stay?	
What don't you like about where you stay?	
How do you think housing for mine employees can be improved?	

Interview protocol for rental housing providers










Building rapport phase	
Introduction of myself and research project	
Discussion of research ethics	
Interview question	Research question addressed
Apprehension phase	
Can you tell me who do you rent out your housing space to?	What housing options are currently available for mine employees?
For how long have you been renting out your housing space?	
Exploration phase	
What made you choose to rent out some of your housing space?	What housing options are currently available for mine employees?
Which particular areas of your housing establishment do you rent out?	
How much rent do you charge per month?	
How did you find out about your current tenants? What method of communication did you use to connect with them?	How do suppliers and customers of rental housing currently connect?
What methods of advertising do you use to connect with tenants?	
What method of communication do you use to connect with tenants?	
What criteria do you use in choosing tenants?	
How do you currently receive payment from your tenants?	What are the required design specifications for an inclusive rental housing business model?
Co-operative phase	
How would you prefer to receive payment from your tenants?	What are the required design specifications for an inclusive rental housing business model?
What is your preferred rental term with tenants?	
What security measures have you put in place to ensure that rental revenue is received?	
Are there any challenges that you have experienced since you started renting out housing space?	
How do you think these challenges can be addressed?	

Interview protocol for company housing department representatives

Building rapport phase	
Introduction of myself and research project	
Discussion of research ethics	
Interview question	Research question addressed
Apprehension phase	
Can you tell me about the key pillars of your company's housing strategy?	What housing options are currently available for mine employees?
Exploration phase	
Can you tell me about employer assisted housing schemes that your company offers?	What housing options are currently available for mine employees?
Are there any plans to build rental housing stock?	
Do you think backroom rental units have a role to play in providing rental housing stock?	
Are you aware of the methods that mine employees use to connect with rental housing providers	
What is your company's position on the living out allowance?	
What percentage of the workforce is on the living out allowance?	
What is the interest from migrant mine workers to purchase property around the mining operations?	
What is your company's progress in converting hostels to single and family units?	
What percentage of the workforce resides in hostels?	
Co-operative phase	
What challenges have you encountered in implementing housing programmes?	

APPENDIX C: BUSINESS MODEL

Creating a low-cost rental housing business model

Key Partners  <ul style="list-style-type: none"> - Category C & D income level employees - Property developers - Mining company housing departments - Financial institutions 	Key Activities  <ul style="list-style-type: none"> - Build investment property for C & D level employees - Provide rental housing for low-income A & B level employees Key Resources  <ul style="list-style-type: none"> - Home ownership allowance from C & D income level employees - Property - Access to land 	Value Propositions  <p>C & D level employees</p> <ul style="list-style-type: none"> - Access to home ownership allowance - Investment property that is paid for by home ownership allowance <p>A & B level employees</p> <ul style="list-style-type: none"> - Additional rental income - Affordable low-cost rental housing 	Customer Relationships  <ul style="list-style-type: none"> - Build quality investment property - Maintenance of investment property Channels  <ul style="list-style-type: none"> - Access home ownership allowance from mining companies - Facilitate rental transactions 	Customer Segments  <p>C & D level employees</p> <ul style="list-style-type: none"> - Who want to invest in property - Who want to access home ownership allowance <p>A & B level employees</p> <ul style="list-style-type: none"> - Who require no-frills affordable rental housing
Cost Structure  <ul style="list-style-type: none"> - Facilitation of contract costs with property investors - Marketing costs - Administration costs 		Revenue Streams  <ul style="list-style-type: none"> - Commission from property investors 		

Value propositions: What is the company's value proposition?

Customer segments: For whom does the company create value?

Channels: How is the value proposition delivered to customers?

Customer relationships: What relationships do customers expect from the company and how are customer relationships maintained?

Revenue streams: How does the company capture revenue? What are the revenue streams?

Key resources: What are the key resources of the business?

Key partners: Who are the key partners and networks that make the business work?

Key activities: What are the businesses key activities?

Cost structure: What are the main costs incurred to run the business?