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VULNERABILITY OF WOMEN LIVING IN MINING COMMUNITIES: A CASE STUDY OF SMASH BLOCK INFORMAL SETTLEMENT, THABAZIMBI LOCAL MUNICIPALITY, LIMPOPO, SOUTH AFRICA.

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A research report submitted to the Faculty of Engineering and the Built Environment, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Built Environment (Housing).

Johannesburg, 30 August 2019

DECLARATION

I declare that this research report is my own unaided work. It is being submitted for the Master of Built Environment (Housing) to the University of Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination to any other University.

.....

(Signature of Candidate)

.....28.....day of..August.....year...2019.....

ABSTRACT

Smash Block Informal Settlement is one of the fast-growing mining communities located in Thabazimbi Local Municipality, South Africa. The presence of a mine in a community presents both opportunities and challenges for socio-economic development. The opportunities and challenges manifest themselves with respect to the social, economic, spatial (physical and environmental) and political realms in the area. Exploiting the opportunities and converting the challenges into spatial transformative projects and programmes, though possible, is not easy to undertake. This is because mining communities face different, multiple and dynamic challenges such as unemployment, pollution and poor infrastructure and services. In this set-up marginalised and peripheral communities and groups such as women, the elderly, the poor and youth become vulnerable to the impacts of spatial inefficiencies and inadequacies within specific neighbourhoods or regions. This study was carried out to examine the vulnerability of women living in Smash Block mining community with respect to access to basic infrastructure and services necessary for ensuring a functional urban mining housing settlement. In order to situate the discussion within the wider vulnerability and mining informal settlements discourse, scholarly literature in mining communities and vulnerability was reviewed with a view to isolating the key vulnerability and women (gender) models, theories and framework of analysis for use in reducing the smash block informal settlement in Thabazimbi and women's issues in the study area. This literature review was important in highlighting the generic conceptual factors that influence women's vulnerability in informal mining settlements communities. At the same, this literature review was able to assist in the determination of a mix of strategies that informal mining settlements can adopt in seeking to adapt and mitigate informal mining settlements challenges for women in the study area.

The study adopted both a qualitative and quantitative dimension making use of a phenomenological research design over-arching approach. A total of ninety three (93) randomly sampled respondents from Smash Block Informal Settlement participated in the study. Semi-structured and structured interviews were conducted to collect data for the study. The data was analysed by means of content analysis, thematic analysis as well as through the use of descriptive statistics, which enabled the researcher to identify important informal settlement themes that explain the increasing physical, unemployment, poverty,

safety, infrastructure, environmental, equipment and facilities vulnerabilities of women in the study area.

The findings of the study revealed that most of the women in Smash Block Informal Settlement only have basic primary education and some of them are non-South Africans. Inadequate education and insufficient migrant rights are at the core of vulnerability of women in the settlement. In this set-up, non-South African women trade off human rights in exchange for access to employment, shelter, food and acceptance in the community. The majority of the women came to Smash Block Informal Settlement with the aim of securing employment and living closer to their spouses. However, most of the women have failed to secure permanent employment as employment opportunities are few and limited. 30% of the women interviewed were non-South African and were not prioritised for work by local mining companies. On the other hand, unemployed South African women highlighted that corruption fees were charged in exchange for bribing ones way to a job. Without such a bribe, it was difficult to access paid employment by women in the study area. Generally, the study corroborated earlier and similar studies that underlined that life in Smash Block Informal Settlement was not easy for women as they reside in areas that lack basic services such as tap water, electricity, houses and better streets. Consequently they spend most of their time fetching water from the street tanks (mobile water bowsers) provided by the mining companies. In addition, the women depend largely on paraffin stoves for cooking and paraffin lights/candles to light their houses at night, chewing into any savings that they may have. The women further complained that they were largely excluded from community projects happening in their communities. Instead, they are only informed of development within the community, promised jobs but were never employed. All of the above lead to poor living conditions for these women exposing them to different vulnerabilities. In order to address the identified challenges, it is recommended that the women form an informal Settlement Housing Advocacy Group/NGO/Forum. The women can use this platform to express their concerns, make inputs and be better integrated in the wider mining and local authority development structures such as the integrated development plan (IDP), spatial development framework (SDF) *etc cetera*.

Key words: *Vulnerability, Women, Mining community, Basic needs, Unemployment*

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TABLE OF CONTENTS

Contents

1. CHAPTER ONE: INTRODUCTION 1
   1.1 Introduction 1
   1.2 Background to mining in South Africa and Study Rationale 2
   1.3 Aim of the study 9
   1.4 Objectives of the study 9
   1.5 Main research question and sub-questions 9
   1.6 Research method 9
   1.7 Data collection 10
   1.8 Ethical considerations 12
   1.9 Structure of the research 13
   1.10 Conclusion 13
2. CHAPTER TWO: VULNERABILITY 15
   2.1 Introduction 15
   2.2 Vulnerability –a definition 15
   2.3 Conceptual framework: vulnerability 16
   2.4 Sources of vulnerability 18
      2.4.1 Lack of infrastructure and basic services 18
      2.4.2 Unemployment 20
      2.4.3 Marital status 22
      2.4.4 Educational background 22
   2.5 Strategies to overcome vulnerability 23
      2.5.1 Economic empowerment 24
      2.5.2 Human capital 25
   2.6 Mining 26
   2.7 Complexities of Mining communities 27
   2.8 Gender and Mining 32
   2.9 Towards a Informal Mining Settlement and Gender Framework of Analysis 36
   2.10 Conclusion 37
3. CHAPTER THREE: SMASH BLOCK INFORMAL SETTLEMENT 39
   3.1 Introduction 39

3.2 Study area 39
3.3 Demographic characteristics 39
3.4 Socio-economic characteristics 42
3.4.1 Education Level 43
3.4.2 Economic status 45
3.4.3 Religious Facilities 48
3.4.4 Health Facilities 49
3.4.5 Recreational Facilities 50
3.5 Housing Types 50
3.6 Social services 51
3.6.1 Water supply 51
3.6.2 Roads 52
3.6.3 Storm water management 52
3.6.4 Waste management 52
3.6.5 Electrical and telephone Services 54
3.7 Mining companies in Smash Block Informal Settlement 54
3.7.1 Cronimet Chrome Mining (CCM) 54
3.7.2 Anglo Platinum 55
3.8 Municipal, Mining Plans/Programmes and Women's Vulnerability 55
3.9 Conclusion 56
4. CHAPTER FOUR: DATA ANALYSIS AND FINDINGS 58
4.1 Introduction 58
4.2 Presentation of findings 58
4.3 Demographic characteristics 58
4.3.1 Household composition of the interviewed women 61
4.3.2 Educational level of respondents 62
4.3.3 Employment status 63
4.4 Socio-economic status 65
4.4.1 Reasons for coming to Smash Block Informal Settlement 65
4.4.2 Access to socio-economic opportunities 66
4.4.3 Challenges within the Smash Block informal settlements 67
4.4.4 Access to basic services 68
4.4.5 Services respondents considered as priority 71

4.4.6 Implications of having a limited access to basic services 72
4.5 Linkages between the community and the mine 73
4.5.1 Community engagement by the mine 74
4.6 Emerging themes and discussion 74
4.7 Conclusion 75
5. CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS 76
5.1 Introduction 76
5.2 Key findings 76
5.3 Recommendations 81
5.4 Recommendation for future area of research 84
5.5 Conclusion 84
6. REFERENCE LIST 89
7. APPENDICES 98
Appendix 1: interview guidelines 98
Appendix 2: Participation information sheet 106
Appendix 3: Ethics clearance certificate 108

LIST OF FIGURES

Figure 1-1: Metals and minerals mined in South Africa.....3
Figure 1-2: Map of South Africa showing Limpopo province and Thabazimbi Municipality. 6
Figure 1-3: Map of Limpopo Province showing Thabazimbi and Smash Block. 7
Figure 2-1: Drivers and possible strategies of women's vulnerability in mining communities.....17
Figure 2-2: Sources of vulnerability.....19
Figure 2-3: Flow chart displaying the processes through which education contributes to vulnerability reduction 23
Figure 2-4: Understanding education, gender empowerment, growth and poverty reduction 25
Figure 3-1: Population Gender Distribution in Smash Block Informal Settlement 41
Figure 3-2: Picture showing educational facilities in Smash Block Informal Settlement .44
Figure 3-3: Pictures showing some economic activities in Smash Block 47
Figure 3-4: Employment Status in Smash Block Informal Settlement 48
Figure 3-5: Pictures showing health facilities in Smash Block 49
Figure 3-6: A picture showing a skip bin used by the community to deposit waste. 53
Figure 4-1: shows places of origin of the interviewees.....60
Figure 4-2: Household composition 61
Figure 4-3: Average Number of household members in study area 62
Figure 4-4: Education level of respondents in Smash Block Informal Settlement.....63
Figure 4-5: Employment status of respondent.....64
Figure 4-6: Monthly incomes of respondents.....64
Figure 4-7: Business activities in Smash Block Informal Settlement 66
Figure 4-8: Pictures showing eroded road and a woman going to collect water 71
Figure 5-1: Factors Influencing Women's Vulnerability in Smash Grab Informal Settlement 80
Figure 5-2: Adaptative measures to stem women's vulnerability in Smash Grab Informal Settlement.....83

LIST OF TABLES

Table 1-1: Number of employees in mining sector in South Africa 4
Table 1-2: Raosoft Sample Size Calculator Results 11
Table 2-1: Number of women employed in mining sector in South Africa 24
Table 3-1: Population dynamics of Smash Block informal settlement 40
Table 3-2: Gender by Marital Status 41
Table 3-3: A summary of existing land uses within Smash-Block Informal Settlement... 42
Table 3-4: Education level in Smash Block Informal Settlement 43
Table 3-5: Official Employment Status for Smash Block Informal Settlement 45
Table 3-6: Economic status of Smash-Block Informal Settlement Community 46
Table 3-7: Dwelling units in Smash Block Informal Settlement 50
Table 4-1: Gender and Marital Status of Respondents 59
Table 4-2: Age of the interviewee 60
Table 4-3: Respondents views on the access to basic services 69

ACRONYMS

ACDP	Academy for Continuous Professional Development
CCM	Croniment Chrome Mining
GDP	Gross Domestic Product
HDA	Housing Development Agency
MMSD	Mining, Minerals and Sustainable Development
PIS	Participation Information Sheet
SMMEs	Small medium and micro-sized Enterprises
UNIDO	United Nations Industrial Development Organization
WHO	World Health Organisation
IDP	Integrated Development Plan
ITP	Integrated Transport Plan
SDF	Spatial Development Framework
Stats SA	Statistics South Africa
VIP	Ventilated Improved Pit
CCM	Cronimet Chrome Mining
GDP	Gross Domestic Product
QOL	Quality of Life
HDA	Housing Development Agency
KII	Key Informant Interviews
UNDP	United Nations Development Programme
UNIDO	The United Nations Industrial Development Organisation

1. CHAPTER ONE: INTRODUCTION

1.1 Introduction

Chapter one explores contributing factors that lead to women's vulnerability in mining communities and the possible strategies to stabilise the prevailing conditions. Globally, mining is a male dominated industry due to its heavy manual work. Doret (2016:252) citing Lahiri-Dutt and Macintyre (2006) observed that "the way the mining industry was socially organised imposed unequal and social relationships on women and men and led to the subordination of the position of women, both within the mining industry and within the communities outside it". Traditionally, men worked in the mines while women took care of the families thus missing out on the job, income and other mining benefits (Mabin, 2003).

In this set-up there emerges a huge limitation on working opportunities for women in the mining sector. This is emphasised by (Doret, 2016 citing Singer, 2002) who highlights that historically, women in South Africa either worked as administrators in the mines or as prostitutes near the mining camps (Hinton, Veiga and Beinhoff, 2003). In any case, these constraints have lead to women's vulnerability in mining communities outweighing the opportunities offered to better the living standards for women (Bryceston and Geenen, 2016). Instances in which women who get employed in the mining sector face harassment and are not easily accepted by their male colleagues abound (Doret, 2016). Consequently, when women join the mining industry, men are generally conceived as feeling intimidated by the invasion of a previously conceived male dominated spaces by women (Bezuidenhout and Buhlungu, 2015). This explains, partly why women sometimes face alienation, sexual harassments or sexist remarks within such environments.

Traditionally, literature perceived women as home care takers even though nowadays, women are providers as much as men (Huggins et al, 2017). The post-modern women have multiple roles that include working in addition to being family caretakers (Doret, 2016; Lips, 2018). While the liberating and empowering forms of the post-modern societies are appreciated, this has also been criticised as happening in a rapidly

globalising and technological word in which more strain on women and generally workers is being exerted. Consequently, women who both work in mines or live in mining communities are not immune to the common range of challenges that make women in general vulnerable especially in the context of developing countries. Doret (2016:253) reports that these challenges include among others "a male-dominated culture, discrimination, resistance by male workers, sexual abuse and harassment, inappropriate personal protective equipment, shift work, inadequate infrastructure facilities (ablution facilities and change houses isolation), physical incapability and a lack of clear and transparent development opportunities" (Chinguno, 2013).

Overall, women who live in mining communities largely depend on their husbands for survival. D'Souza *et al.* (2013) observes that extensive mining activities reduce women's opportunities in the mining sector. This, however, increases both dependency and vulnerability of women. Most women in the mining communities are abused by their alcoholic husbands/partners and exposed to husbands' infidelity (D'Souza *et al.*, 2013). These subtle forms of vulnerabilities tend to disempower women (Werthmann, 2009). In this regard, vulnerability is a multi-dimensional concept. Examining drivers of vulnerability will therefore inform programmes to empower and support women, youths, the elderly and children living in the mining communities in order to improve their wellbeing.

1.2 Background to mining in South Africa and Study Rationale

Mining plays a significant socio-economic and development role within the context of individuals and households quality of life, community development and (dis)empowerment within mining enclaves, regions and communities throughout various spheres and sectors of the economy for any country. The importance of mining cannot be overemphasised as it is acknowledged that mining benefits communities in various aspects (MMSD, 2001; Lahiri-Dutt, 2012). In South Africa mining plays an important role in the development of economy. In 2015, the mining sector contributed R286 billion to the Gross Domestic Product (GDP) (7.1% growth) providing 457,698[1]

[1]Over 3 per cent of people are employed nationally by the mining sector in South Africa

and 1.5 million direct and indirect jobs respectively for the unemployed (Chamber of Mines, 2017).

Figure 1-1 shows the metals and minerals that are mined in South Africa. South Africa has been the major producer of Gold since its discovery in the late 19th century until early 20th century. This is also the same regarding both Diamond and Platinum which was discovered in the early 20th century and meanwhile Platinum was discovered in 1924. On the other hand Coal, another major resource of South Africa was first mined in the late 19th century. Globally, South Africa remains the largest producer of both Chrome and Manganese (Chamber of Mines, 2017).



Figure 1-1: Metals and minerals mined in South Africa.

Source: Chamber of mine (2017:136)

The government of South Africa encourages companies' including mining sector value addition and beneficiation industries to promote gender equity with respect to access to employment opportunities and job category placements by trade, discipline and profession. While the overall framework for gender mainstreaming in the mining sector exists, concerns have been raised in terms of a policy implementation gap. This gender policy gap is argued to be responsible for the various forms of women

vulnerabilities that exist in the mining settlements/communities. Table 1-1 shows the number of people employed in the mining sector in South Africa.

Table 1-1: Number of employees in mining sector in South Africa

Metal/mineral		**Direct employees**
Gold		115 822
Platinum		172 639
Diamond		17 885
Coal		77 226
Others	Chrome	15 459
	Iron ore	17 081
	Manganese	7 200

Source: Chamber of Mines, (2017)

Literature review confirms the importance of making use of gender equity quotas and targets as important indicators towards measuring the quality of life (QOL) index and thereby enhancing the nation's socio-economic development. While recent statistics from the Chamber of Mines show that most mining companies now exceed the target of employing at least 10 per cent female workers per various mining and related trades and occupation categories, this is however criticised as being not enough and inadequate by gender activists groups. This figure is also criticised as falling way short of being representative and reflecting the national gender sex ratio that shows over 50% of the population being female (StatsSA, 2011; Stats SA Community Survey, 2016). In 2015, about 18 per cent of mine workers were women, excluding those women employed in: Local recruitments; Business development and local content procurement, (employees and employers); Bursaries, Training and development; and Improving access to healthcare and living conditions (water, sanitation, roads) and other social investments and local tax remittance (Chamber of Mines, 2017:29). In this regard, disaggregating and understanding deeply the impact of mining in informal settlements on vulnerable groups in which women constitute a significant group becomes an exciting area for research and policy dialogue.

Mears (2011) observes prejudicial treatments against African workers in mines, that date to colonial times and which were framed within a context of a male-dominated and constructed mining industry. These include laws which controlled and minimised labour mobility. Black mine workers lived in tents and later resided in reconstructed structures from corrugated iron structures. This resulted in slums and informal mining settlements, which over centuries have galvanised into formal mining towns that still bear the relic of the apartheid spatial and settlement structure fragmentation and social fracturing remnants (Mears, 2011). The emergence and growth of the informal settlements in the mining towns failed to meet up the housing demand among mining workers (Housing Development Agency (HDA), 2015). This was further compounded by proximity to mining sites facilitating easy accessibility to work places, therefore making such sites affordable for poor employees and other low income households. At the centre of the current disconnect within the informal settlements in mining areas and women debate is the feminist paradigm to development. The feminist (gender) paradigm seeks to locate women and marginalised groups at the centre of development thereby promoting inclusive informal settlements upgrading and development strategies that overcome vulnerabilities of women in housing development among other issues.

Studies in mining towns and settlements of South Africa are replete with stories highlighting how most mine workers lack the required documentation to qualify for state subsidised houses. Consequently, mine workers (women included) are left with no option but to engage in the informal occupation of land thereby creating informal mining town settlements (HDA, 2015). These informal mining settlements are characterised by lack of basic services and infrastructure, insecurity of tenure or undefined land tenure rights and the absence of compliance to formal town planning standards and systems among other things (Mears, 2011; Bezuidenhout, and Buhlungu, 2015). Smash Block in Thabazimbi is a mining settlement located within Amanderbelt Tumela mine (figure 1-2) in Limpopo province. The settlement is located 20km from Thabazimbi town, 20km from Northam Township and 139km from Pretoria.

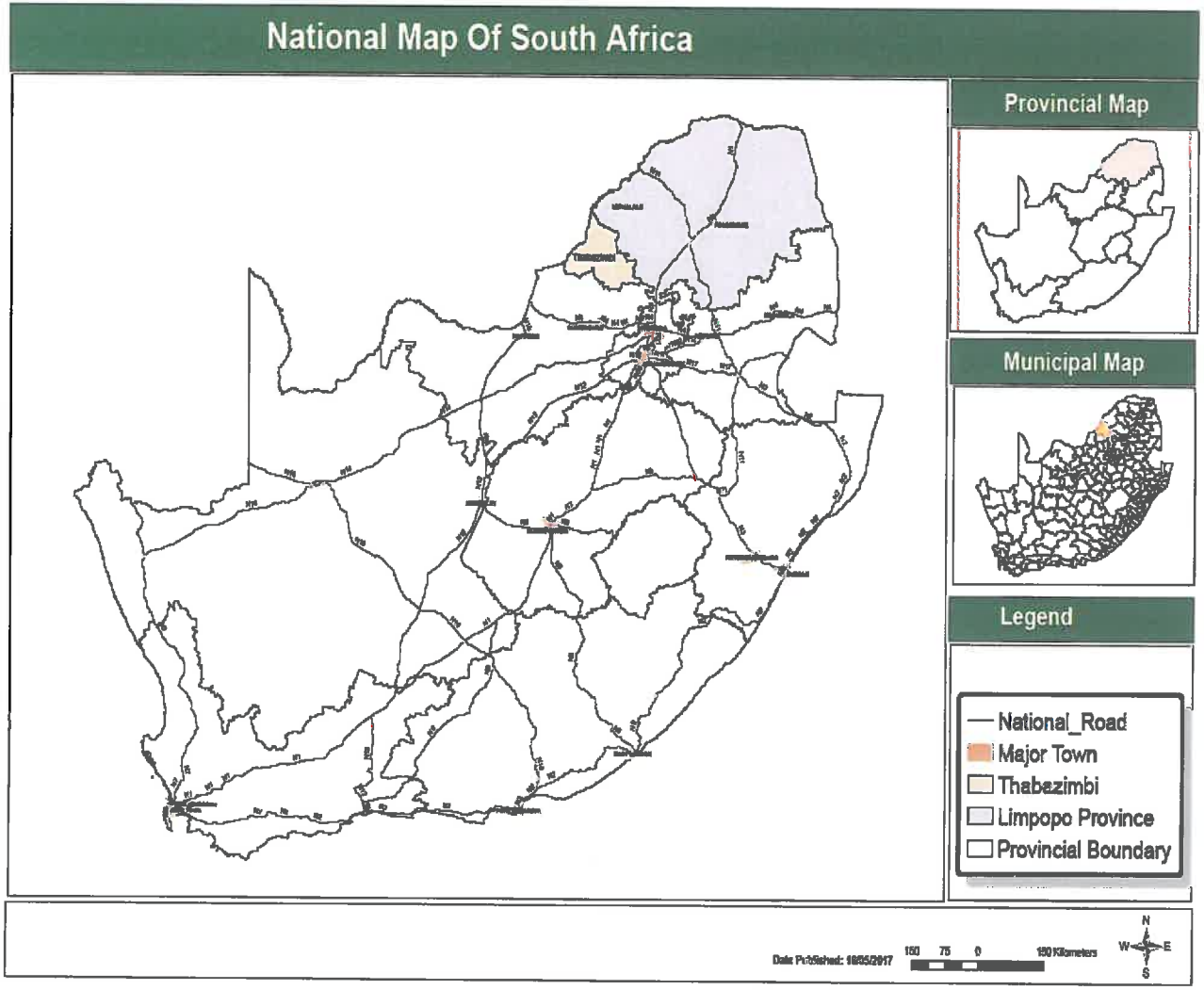


Figure 1-2: Map of South Africa showing Limpopo province and Thabazimbi Municipality.

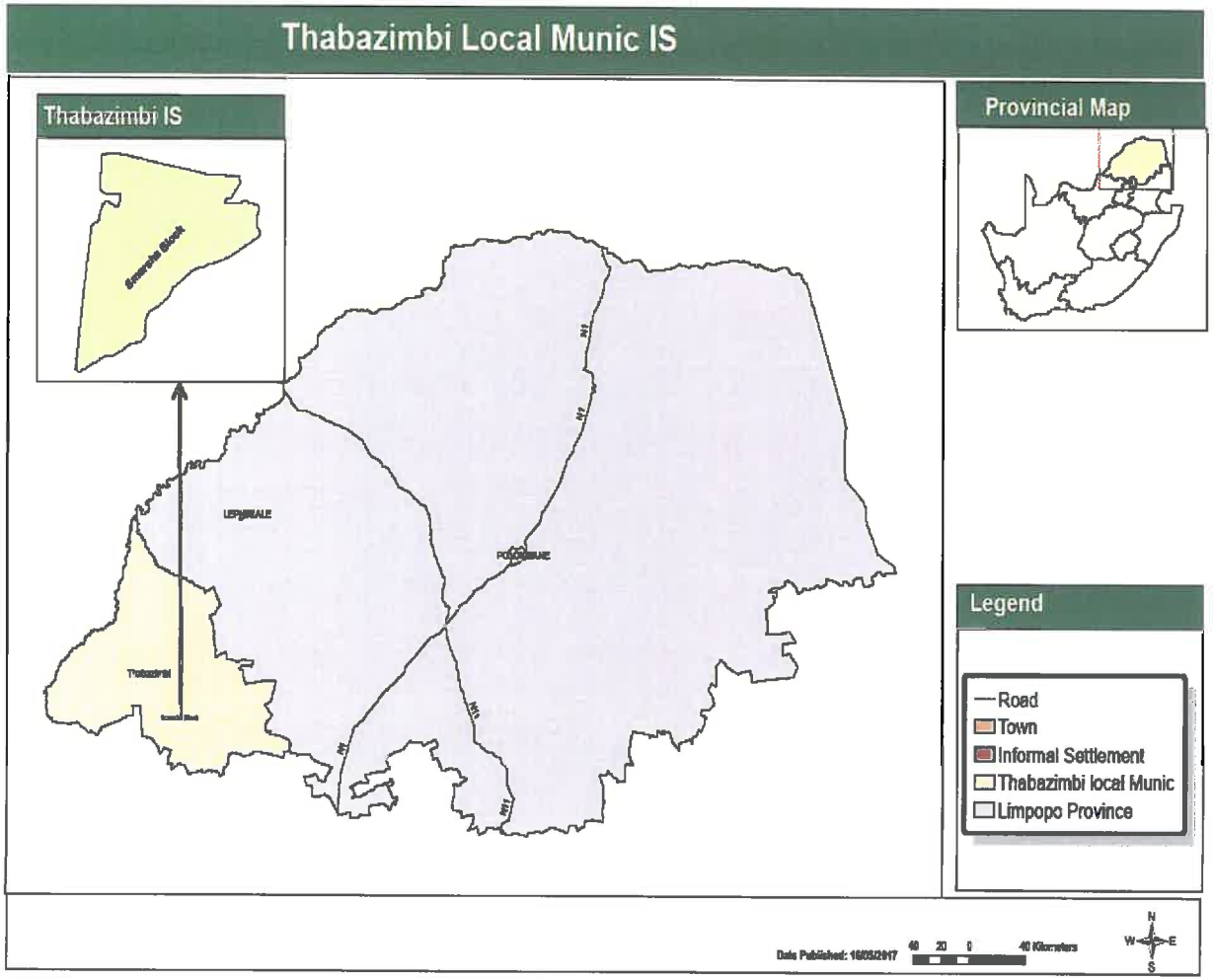


Figure 1-3: Map of Limpopo Province showing Thabazimbi and Smash Block.

Source: Derived from Thabazimbi Municipality GIS section (2017)

The total population of Smash Block was estimated at 9,643 with 6,273 males and 3,364 females (Statistics South Africa 2011). There are 3,179 households in Smash Block settlement. 81 per cent of households are male headed while 19 per cent are female headed. The settlement is comprised of both mine workers including their family members. Mining brings great opportunities to local communities through the following issues among others, i.e. provision of physical and socio-economic amenities such as: Health and educational facilities ; Employment opportunities ; Skills development and Income remittance (Musvoto, 2001; Bryceson et al, 2014).

Different mining companies tend to deliver different socio-economic benefits to local communities in different ways while employing different prioritisation strategies. Musvoto (2001) illustrates that different mining companies tend to address health and educational facilities, employment opportunities, skills development as well as income remittance in different ways, while some mining companies ignore altogether the need to address socio-economic issues beyond direct mining exploitation and development requirements (Macmillan, 2012). The study area, Smash Block settlement is characterised by lack of basic social infrastructure and services. The settlement has no electricity except for the mining companies provided primary school, temporary clinic and street lights. According to Statistics South Africa (2011), 91.96 per cent of the total population in Smash Block has no access to sanitation services. The implication of such scenarios to women and the whole community can be devastating and frustrating. Regardless of age and status, a community that lacks physical and social services and basic infrastructure is associated with compromised living standards (Hunter, 2006). Generally, the inhabitants are not uniformly affected as the burden of inadequacies on average impacts on women, the aged, physically challenged and minorities in a disproportionate fashion compared to all other segments of the society. This is because vulnerable groups (including women) are more exposed to risks linked to dependency and powerlessness since the majority of the women are unemployed (Hunter, 2010). This becomes more complicated for employed women who have the additional requirement to fulfil social caring roles of taking care of the family. While some of the women may be employed, the challenge is the majority are employed in low earning jobs which still leaves them challenged regarding fully meeting economic and social roles in the community set-up. It is from

this premise that this work seeks to explore the vulnerability of women in informal mining settlement communities, with a view to making suggestions on how to improve the situation.

1.3 Aim of the study

The overall aim of this research is to examine the vulnerability of women in Smash Block informal Settlements, Thabazimbi Local Municipality, Limpopo, with a view to making suggestions on how to improve the current situation.

1.4 Objectives of the study

The study objective is to identify the factors that are influencing women's vulnerability in the study area (i.e. social, economic, environmental, infrastructure and governmental) and suggest adaptive measures capable of stemming women's vulnerability in the study area.

1.5 Main research question and sub-questions

In order for this research report to achieve its research study objective, this research seeks to answer the following research questions:

1. How do social, economic, environmental, infrastructural and governmental factors influence the vulnerability adaptive measures of women in Smash Block Informal Settlement?

1.6 Research method

In conducting research, researchers have to select an appropriate research method from among the following: case studies, action research, surveys among others. Biggam (2008) points out that a researcher who employs the case study method approach assumes the primacy of observing the characteristics of a unit (this can be a community, a class or a child). The aim of studying and observing the study (case) unit is to enable "the deep probing and intense analysis of the multifarious phenomena that constitute the components, processes, activities, outcomes including the life cycle of the unit" (Biggam, 2008:83; Nyamunda, and Mukwambo, 2012). Within this discourse, this study adopted the case study approach in which the researcher

observed and studied in detail the characteristics of women living in Smash Block informal settlement. The aim of the research was to explore the underlying factors that contributed towards the vulnerability of women living in Smash Block Informal Settlement.

Consequently, the research is primarily a qualitative study on vulnerable women living in Smash Block Informal Settlement. An explorative qualitative approach was infused in examining the poverty levels, violence and living conditions faced by women in Smash Block Informal Settlement. A semi-structured and structured in-depth interview guideline was used to collect empirical data relating to women's experiences living in an informal mining settlement. The interviewer elicited views and opinions of randomly sampled household semi-structured and structured questionnaires to unpack the experiences of women living in Smash Block community. The researcher used focused group discussions and the snowball technique to conduct key informant interviews (KII) with selected women activist group leaders, political leaders, community leaders and housing experts to gain in-depth understanding of issues pertinent to women in the Smash Block Informal Settlement/Community. The KII complemented the randomised households surveys such that it allowed the validation and cross-checking of findings from secondary data as well as other layers of interview techniques used for the study. Open ended questions were used during interviews. At the same time, the knowledge and understanding that was gained from a critical review of literature assisted the researcher in generating sharp and focused research interview question guidelines important in engaging with different stakeholders and role players impacting on informal settlement development and processes in Smash Block community. .

1.7 Data collection

Relevant and necessary data was gathered from both primary and secondary sources. The collection of the required data was carried out in accordance with the ethical standard, i.e. protecting the right and anonymity of the surveyed population. Guided by the objective of the study, the methods of data collection included the following: interviews, telephone interview, visual inspection surveys including conducting

transect walk according to protocols that were generated to answer the aim and objectives of the study. Moreover, the sensitivity of some questions and the need for clear, sharp and explicit answers to key vulnerability questions compelled the need for the above referenced different types of interviews. Data and information gathered from primary interview sources was based on observation surveys and checklist; interview questionnaire guide/checklist as well as sourcing individual's experiences with respect to opinions and perceptions as applicable to the Smash Block informal mining settlement.

Questionnaire forms that were employed in the surveys were developed carefully taking into account a number of considerations such as clarity and simplicity. The questions were formulated to be accurate and geared towards clearly maximizing responses through mixing open ended questions with close-ended questions. To ensure proper design of the questionnaire, a pilot survey was conducted and mock surveys conducted. This testing phase provided an opportunity for feedback and to assess the potential reaction of those interviewed and the practicality of administering the survey instruments. The outcome of this pilot survey assisted in reviewing and adjusting where needed, the format, structure and content of the final questionnaire and checklist guides/forms. In this regard, sampling was essentially useful in acquiring data and information as well as being a method to save time, effort and funds through using a smaller representative sample rather than undertake a full census of the total population in the study area. The *Raosoft on-line* sample calculator was used in calculating the scientific representative sample for the study population. Table 1-2 presents the Raosoft sample size calculator results for the study area.

Table 1-2: Raosoft Sample Size Calculator Results

Indicator	Number or Percentage
Margin of Error	5%
Confidence Level	95%
Population Size	10 725
Expected response distribution	50%
Recommended Sample Size	371
Actual Reduced Sample Size (25% of Recommended Sample Size)	93

Source: www.raosoft.com

From table 1-2, the recommended Sample size for the study was 371. However, taking into account time and budget constraints, the researcher calculated 25% of 371 as the actual study sample size i.e. 93. According to Fairburn and Kesseler, 2015, thirty (30) people is often considered the minimum sample size for representative data. As a result, 93 informal settlements household stands were sampled for interviews. The stands were constructed through making use of geographic information system (GIS) shape files obtained from the Municipal GIS systems and working stands were created with working stand numbers allocated. These hypothetical stand numbers were used as place holders that were reference points in the random selection of the stands for purposes of randomly sampling the 93 participating households. The stratified random sampling ensured that a mix of women and men from different backgrounds, ethnic groups, social groups and country of origins had equal opportunities to participate in the survey. This also removed researcher bias regarding the choice of research participants.

To ensure a deep representation of women, the study further adopted the snow balling sampling technique. This was based on network or chain referrals in which further cases of women vulnerabilities were followed up for in-depth surveys.

1.8 Ethical considerations

The researcher paid attention to ethical issues such as the need for anonymity, confidentiality, informed consent, as well as conducting research that does not harm participants/subjects/objects including respecting the principle and concept of voluntary participation (Western Australian Centre for Health Promotion Research, 2010). Consequently, the Researcher ensured up-front that the participants were aware of the purpose of the research and how the findings were going to be used. In addition, the researcher provided the participants with the Participation Information Sheet (PIS) that explained the intention of the researcher and invited the interviewee to participate in the study. The PIS also indicated that participation in the survey was voluntary and that the participant was not going to be rewarded for participating in the study. The participants were also made aware of their right to withdraw freely anytime from the survey or not to respond to any questions that made them feel uncomfortable.

When respondents had indicated that they understood what was expected from them and were willing to participate in the research, only then were respondents requested to sign a consent form that acknowledged that they were voluntarily participating in the research. The data that was collected was used strictly for academic purposes only. The researcher also kept the information about the respondent confidential by not writing the names of the respondents on the research. Furthermore, in conducting the research, the researcher had to seek permission or approval to conduct the study from Thabazimbi Local Municipality. At the same time, the assistance of the Ward Councillor and Smash Block Informal Settlement Committee Members was critical in ensuring that the research was carried out with minimum disruption. At the same time, the WITS human research ethics Committee letter provided further guarantees to respondents and community members on the authenticity of the research work.

1.9 Structure of the research

Chapter one introduces the overview of the context of the study and research methods. The chapter further provides the rationale for the objectives, main research questions as well as expressed the sub-questions of the study. Chapter two provides a review of literature in so far as it is linked to vulnerability of women living in the mining communities, drivers/influence of those vulnerabilities, and possible empowerment and support programs. Chapter three provides the background of study area: Smash Block Informal Settlement. Chapter four discusses the study results and provides data analysis on research findings. Chapter five concludes this research report and provides recommendations on the study with clear implications linked to the wider gender and informal settlement upgrading programmes for South Africa.

1.10 Conclusion

This chapter focused on introducing the research which is based on the vulnerability of women living in Smash Block Informal Settlement in Thabazimbi Municipality. The chapter further introduces the research background and research problem statement of Smash Block Informal Settlement. The study aim, objectives and research question of the study were analyzed. The chapter continued by explaining the research methodology which included data collection and data analysis methods that were

employed in this research report. The chapter concludes by highlighting the whole structure of this research report.

2. CHAPTER TWO: VULNERABILITY

2.1 Introduction

Chapter two critically reviews literature on the vulnerability of women living in the mining settlements and by extension mining informal settlements. Firstly, the chapter defines the term vulnerability. Thereafter, the chapter provides a conceptual framework for this study. There are several themes that are highlighted in the conceptual framework which have resonates on the inter-connectedness and complementarity of vulnerability causes, effects, outcomes as well as interventions requirements. With the aim to promote vulnerability reduction, the chapter discusses the possible strategies that can be used in empowering and supporting women in the mining informal settlements in order to decrease the extent of their vulnerability (Bahramitash and Fanni, 2011). The chapter further discusses several themes such as complexities of mining communities, gender and mining, mining and the environment. Furthermore, the chapter defines mining and how mining is carried out. In any case, the chapter explains how mining affects nearby communities and environments. Finally, the chapter provides an overview conclusion which brings together the intricate and complex framework under which settlement transformation and growth occurs in mining communities.

2.2 Vulnerability –a definition

Generally, vulnerability is often associated with weakness or inability to resist harm or to respond to a disaster. Keenan (2017:929) defines vulnerability as a "degree to which a risk-affected person or population is likely to suffer harm". Mitchell (2003a, 2003b) cited by Keenan (2017:930) further explains that vulnerability is a "function of exposure to risk, ability to resist the risk, and ability to recover once affected". According to Philip and Rayhan (2004) vulnerability is a concept that has two sides. Firstly, the internal side: shocks, risks and stress which an individual/population is subjected to, and secondly, the external side: defenceless or lack of means to cope without damaging loss. Philip and Rayhan (2004) explain that loss can take various forms and notions of being economically impoverished, physically weaker, socially dependent, psychologically harmed or humiliated.

Vulnerability involves both external and internal deprivation. Adger (2006: 270) points out that "vulnerability is driven by inadvertent or deliberate human action that reinforces self-interest and the distribution of power in addition to interacting with physical and ecological systems". Generally, women are often regarded as being more vulnerable than men (Morrone, 2011). In any case, vulnerability aims to understand demographic conditions such as poverty prevalence, as well as variety of hazards among many things. Vulnerability is linked to the concepts of poverty and social exclusion (Morrone 2011). However, Morrone (2011) makes an interesting point that while the poor and the excluded are most vulnerable, but not all the vulnerable are poor and excluded. Individuals or household's ability to stand crises depends on the assets they can draw upon for support and protection (*ibid.)*. Morrone (2011) defines assets as both tangible and intangible stock of wealth used to generate wellbeing of the household/individual. Vulnerability is associated with three concepts: poverty, risks (shocks and stresses) and inability to manage and respond to risks. In South Africa, the majority of households are vulnerable to social exclusion, lack of access to basic services and infrastructure, unemployment and HIV/AIDS (*ibid,* Bryceson, Jønsson and Verbrugge, 2014). Poor and informal communities are vulnerable due to limited access to jobs and other economic opportunities, land and live in poor living conditions due to lack of basic services and infrastructure.

2.3 Conceptual framework: vulnerability

The central thesis of Fineman's (2008) theory of vulnerability is that all human beings are vulnerable and prone to dependency (both chronic and episodic) (Martha, 2008).The state therefore has a corresponding obligation to reduce, ameliorate, and compensate for that vulnerability. Implicit in Fineman's thesis is an assertion that it is neither just nor reasonable to expect that mere equal treatment will meet individuals' needs in a world in which no one is assured of avoiding injury, illness, or other adverse life events (Martha, 2008:13; Rajak, 2012). Fineman posits that in order to meet its obligation to respond to human vulnerability, the state must provide equal access to the "societal institutions," that distribute social goods such as healthcare, employment, and security (Martha, 2008).

In Fineman's story-telling, this obligation is consistent with the original purpose of the state: to respond to human vulnerability. She explains that Vulnerability and the need for connection and care it generates are what makes us reach out and form society with systems for disaster risk reduction and health risks minimisation (Martha, 2008; Cronje, Reyneke, and Van Wyk, 2013). It is the recognition and experience of human vulnerability that brings individuals families together as communities, and communities into societies, nation, states, and international organizations. Moreover, in Fineman's view, it is the state that has legitimised and given power to social institutions that increase resilience for some while undermining the resilience of others; thus the state must accept responsibility for the "effects and operation" of those institutions. Figure 2-1 shows potential sources that lead to women's vulnerability and possible strategy that can empower and support women living in mining communities.

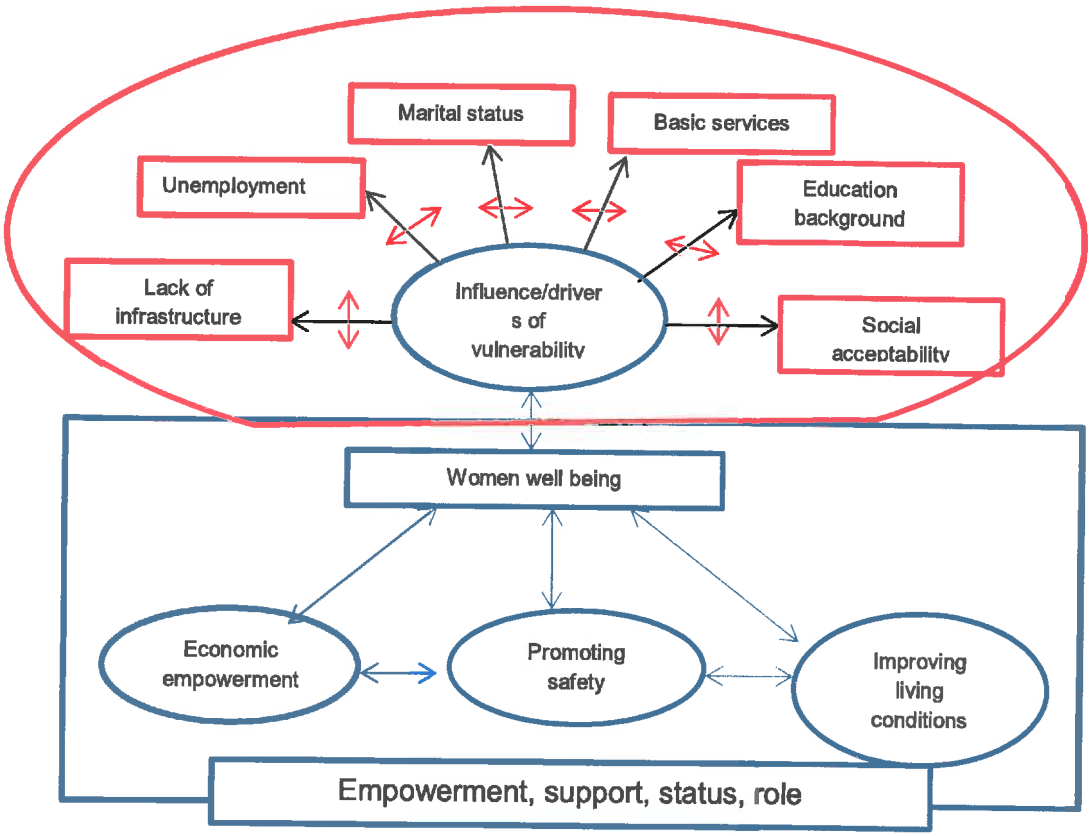


Figure 2-1: Drivers and possible strategies of women's vulnerability in mining communities.

2.4 Sources of vulnerability

There are many factors that can cause vulnerability such as population growth, poverty, educational background, hazardous location, lack of access to resources, basic service and poor health among others. Nyamwanza (2012) shows sources of vulnerability in Zimbabwe (figure 2-1). Philip and Rayhan (2004) explain that when people do not have a political voice or are socially disadvantaged, their vulnerability is further increased (Lahiri-Dutt, 2013). This section further discusses lack of infrastructure, unemployment, marital status, basic services and education background as factors that cause women in the mining communities to be more vulnerable to their counterparts.

2.4.1 Lack of infrastructure and basic services

Even though infrastructure is important in driving economic activities, it has a huge role within communities. With the lack of a common definition of infrastructure, Smith and da Lomba (2008) define infrastructure as including different forms of transport, public education facilities, electric power generation and transmission, water supply and water resources, waste water management, solid waste treatment and disposal and telecommunication. Smith and da Lomba (2008) further notes that infrastructure does not only include physical aspect but also includes the operation and management of the physical infrastructures (Spiegel, Keane, Metcalf, and Veiga, 2015). Figure 2-2 shows different sources of vulnerability. For the purposes of this research report, the researcher focused on basic municipal services. Basic municipal services is defined as including among others services clean water, sanitation, electricity and waste removal. Many factors explain the sources of vulnerability in any geographic area. These factors interact in complex, dynamic but contextual ways leading to differentiated vulnerabilities by sector and indicator in any geographic area. As an example, poverty and lack of income make it difficult for families to fight and resist vulnerability amplification factors. The same applies to how climate change variations linked to droughts or floods can cause either famine through crop failure or washed away crops/fields leaving predominantly subsistence reliant families vulnerable. HIV/AIDS incapacitates the ability of breadwinners or working class group to work and bring income to the family hence reducing the capacity of the family to have income necessary in either improving or acquiring vulnerability fighting assets or resources. In

practice, all these factors act in a complex interplay with resonates in different vulnerability scenarios playing out within any geographic area.

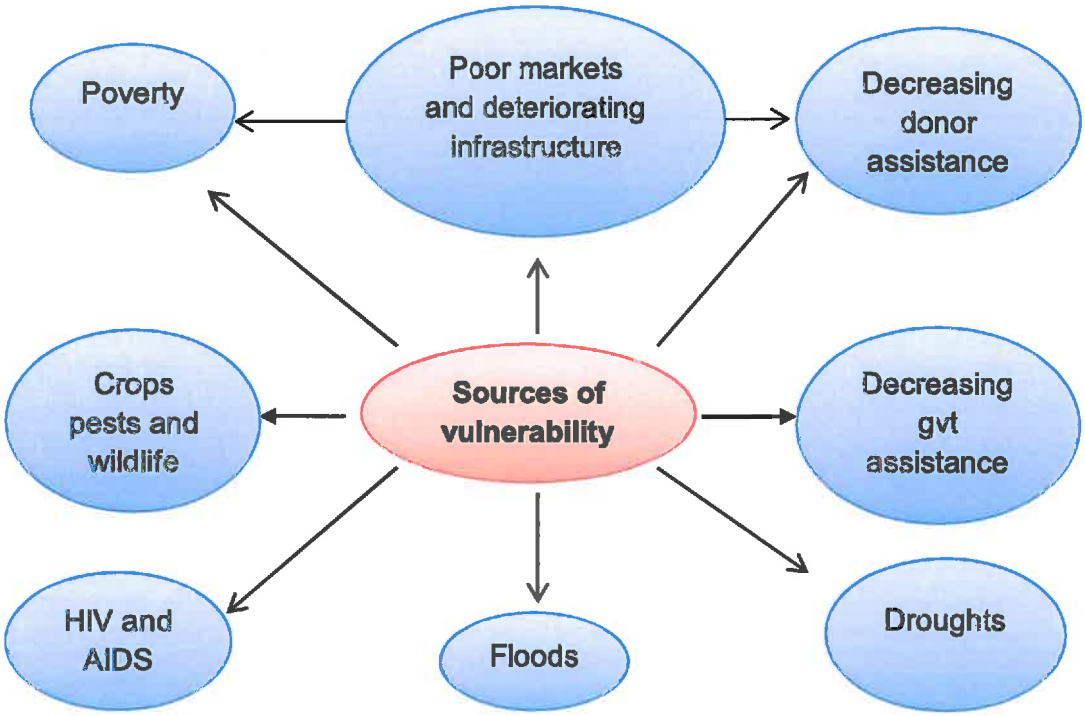


Figure 2-2: Sources of vulnerability

Source: Nyamwanza (2012:145)

Some social impacts on human being associated with lack/poor infrastructure and basic services may not be directly linked to infrastructure and basic services. Bates (2012) argues that it cannot be concluded that poor health is a result of lack of basic infrastructure in communities which lack access to basic infrastructure. Manase, Nkuna and Ngorima (2009), note that communities which do not have access to basic services tend to be more vulnerable to poverty and water-related diseases. In terms of water, sanitation and solid waste removal, the World Health Organisation (WHO) (2002) reports that water related diseases account between four and eight per cent of total disease burden in developing countries (Tadgell, Doberstein, and Mortsch, 2018). World Health Organisation (2002) further reports that 90 per cent of all diarrhoea in developing countries is due to lack of clean water, sanitation and solid waste removal in residential areas. There is no doubt that people living in Smash Block Informal

Settlement lack access to basic infrastructure like any other informal settlement in the country. This is also emphasised by Solomons (2016) when he reports that settlements which lack access to basic infrastructure mushroom in mining and around mining areas.

Due to the African culture in which the division of household labour within household members is dominant, women tend to be more exposed to being vulnerable to lack of basic infrastructure. Fay (2005) note that communities which lack access to basic infrastructure encourage high school dropouts by female pupils. This is because girls and women tend to spend more time doing household's chores such as collecting water. Men who work in the mines spends days or nights working while women remain home doing household's labours. The nature of mining work tends to conflict with the traditional male dominated world view of a women's place being at home. Women who take the equivalent of traditional mine shift work have to content with adjusting and adapting new working roles as well as family set-up arrangements which shifts cannot happen without social disruptions. This is because women are expected even if they are employed to continue taking care of children, ensuring food security, collecting water for household use and doing laundry. All the above activities directly expose women to harsh informal settlement environment realities. Batterman *et al.* (2009), notes that the use of isolated pit latrines in poor settlements exposes women to vulnerability when the pit latrines overflow. This entails that the nature of women labour exposes women to risks linked to physically contacting water from over flowing pit latrine thereby compromising women's health.

2.4.2 Unemployment

Unemployment and wealth in terms of property and access to land tenure can be directly associated to vulnerability. Adger (2006) points out that vulnerability occurs when a person or people have insufficient wealth and real income and also when there is breakdown in previously held endowments (Tadgell, Doberstein, and Mortsch, 2018). For some women, mining provides economic opportunities while for others mining pays very little or are unsuccessful in securing any kind of economic opportunities. Scholars and researchers define unemployment in various ways.

Unemployment can be defined as occurring when an individual is without work but is currently available and ready to work (Barker, 1999; Binswanger-Mkhize, and Im, 2014).

In many countries, whether looking for work or not, a high percentage of women living in mining communities remain unemployed. This is because mining companies prefer to employ male labourers due to the hard mining labour requirements of the activities. Doret (2016) citing Singer (2002) strengthen this by saying that women in South African mining communities either work as administrators in mines or prostitutes in mining towns. Due to on-going cost pressures and unstable commodity prices, the mining industry has shed many jobs and retrenched many mine workers. According to Statistics South Africa (2017) employment in the mining sector has declined from 538 000 in 2012 to 490 000 in 2015, resulting in 48 000 job losses. North West and Gauteng provinces are the worst affected provinces in terms of job losses. Limpopo and Mpumalanga however, gained 5 000 and 13 000 mining job opportunities respectively (*ibid.*).

In terms of employees in the mining sector, North West is the biggest employer, followed by Mpumalanga, Gauteng and then Limpopo. Even though the mines hire women, the industry is still male dominated. Chamber of Mines (2016) points out that women make up only 13 per cent of the labour force in the mining sector. The mining houses argue that women are unable to meet the inherent requirements of underground work. It is stated that the underground work is strenuous, dangerous, uses heavy machinery and takes place in unhospitable conditions (*ibid.*). As a result, women are likely not to cope with such conditions. There are many barriers that women face in securing a job in the mining sector. Traditionally, women are primary care givers. Due to lack of job flexibility[2] in the mines, this makes it very difficult for women to juggle work and child/family roles.

[2]Working for long hours and sometimes night shifts.

Unemployment can affect health of individuals directly or indirectly. Literature reveals that unemployment is associated with poor health and mortality rate (Lundin *et al.*, 2010). Moller (2011) notes that the consequences of unemployment and health to individuals are a complex issue to study since unemployment affects individuals in different ways. Paul and Moses (2009) listed gender, social and family support, education, socio-economic status and age as factors which influence how individuals can be affected by unemployment. Paul and Moser (2011) also support that unemployed individuals are exposed to health vulnerabilities in terms of impaired mental health as compared to employed individuals. In terms of gender, women's health as the home caretakers and household headers can highly be affected by unemployment. Thus, the burden of having no income while knowing that the family must be provided for can compromise women's health and in some cases can lead to death due to stress.

2.4.3 Marital status

There is a huge difference between one parent headed family and those families with both parents. Studies reveal that female headed families are more likely to be vulnerable to various socio-economic and physical aspects compared to the male headed families (Kassiel*et. al.*, 2012:5). For instance, Carter *et al.*, (2012:17) concur with this when emphasising that female headed household are exposed to higher risk to food security. Kassiel*et al.* (2012:5) further elaborates that female headed families are likely to be single source provisioned households compared to male headed families. Thus, it is common to find that even though men maybe working and staying alone or with children in certain location due to work, there may be a woman contributing in one way or another in terms of household's activities.

2.4.4 Educational background

Education as a process of acquiring knowledge and skills can contribute to the reduction of vulnerability. When it comes to the reduction of vulnerability, education can directly or indirectly impact vulnerability as shown in figure 2-3 (Muttarak, and Lutz, 2014).

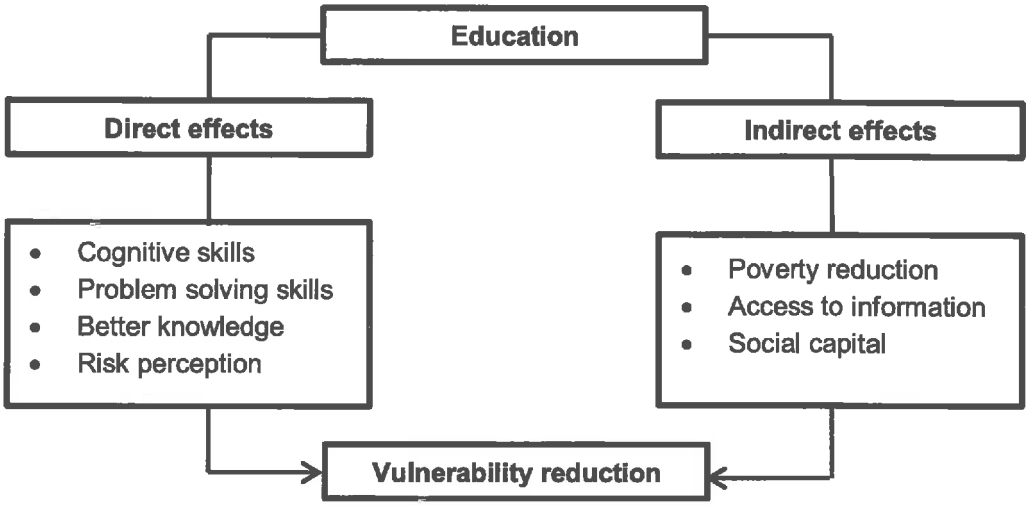


Figure 2-3: Flow chart displaying the processes through which education contributes to vulnerability reduction
Source: Muttarak, and Lutz (2014: unpaginated)

Skills and knowledge can be acquired through education. Muttarak, and Lutz (2014) emphasise that people can acquire knowledge, skills and competencies through direct education. Education is argued to equip people with problem solving skills. People who are educated are capable to respond better to risks and act upon situations than less educated people. Education can also indirectly reduce the impacts of vulnerability through several means. Muttarak, and Lutz (2014) elaborate that education improves people's socio-economic status and increases people's income. As a result, this will allow people to have better and improved purchasing power. Muttarak, and Lutz (2014) state that educated communities have better economic growth. Additionally, educated people have better access to information which can help them to prepare for hazards. Education also increases social capital and support. "Through increasing socio-economic resources, facilitating access to information and enhancing social capital, education can promote vulnerability reduction and adaptive capacity" (Muttarak, and Lutz, 2014: unpaginated).

2.5 Strategies to overcome vulnerability

It is necessary to identify possible responses to overcome threats that lead to vulnerability of women in the mining communities. Vulnerability is linked with ownership of assets (Philip and Rayhan, 2004). "The more the assets people have the

less vulnerable they are, and the greater the erosion of people's assets, the greater their insecurities" (Philip and Rayhan, 2004:5; Tadgell, Doberstein, and Mortsch, 2018).). Strategies are meant to reduce vulnerability by preventing any shocks through promoting "capability to enhance resilience". To promote capabilities to enhance resilience UNDP (unpaginated) advices that people should be able to have access to basic services, decent and stable jobs, social protection and there should be mechanisms to respond adverse events.

2.5.1 Economic empowerment

This is the sum of all the financial assets as well as physical property that makes up the wealth of an individual or a household. This includes money in saving accounts, pension, housing, insurances and investments which are all regarded as forms of wealth. The debt and access to credit are the elements that measure the economic assets and determine the level of vulnerability of the household or an individual (Morrone, 2011). Those who have assets or access to credit are at the better position to survive when faced with adverse shocks. In South Africa, women were not allowed to work underground up until 1990s (Chamber of Mines, 2017). This however has changed and the mining charter states that the mining companies should employ at least 10 per cent of female staff (*ibid.*). The number of women working in the mining industry has increased from around 11 400 in 2002 to around 57 800 in 2015 (Chamber of Mines, 2017). Currently, women now constitute 13 per cent of people working in the mining sector. Table 2-1 shows the number of women employed in the mining sector.

Table 2-1: Number of women employed in mining sector in South Africa

Category	Total Industry employees	Number of women employees	Percentage of women employees
Top management	1 620	232	14.3%
Senior management	5 141	789	15.3%
Professionally qualified and middle management	19 089	4 105	21.5%
Skilled technician	85 507	14 839	17.4%
Total industry employees	**435 639**		
Black women		44 433	10.2%
All women		57 806	13.2%

Source: Chamber of Mines (2017)

Female headed households are more vulnerable and their income is likely to fall below 2 US dollar per person per day poverty line (Manjengwa *et al.*, 2012:68 citing World Development Report, 2000). There are number of factors which expose female headed families to poverty than male dominated families. Figure 2-3 shows how women can be empowered to reduce poverty thus contributing to their economic growth.

2.5.2 Human capital

This is the individual's level of education as well as skills they possess relevant to the labour market. Morrone (2011) points out that the knowledge, competencies and personal traits such as perseverance, adaptability and self-confidence are regarded as human capital. Figure 2-4 elaborates how to understand education, gender empowerment, growth and poverty reduction.

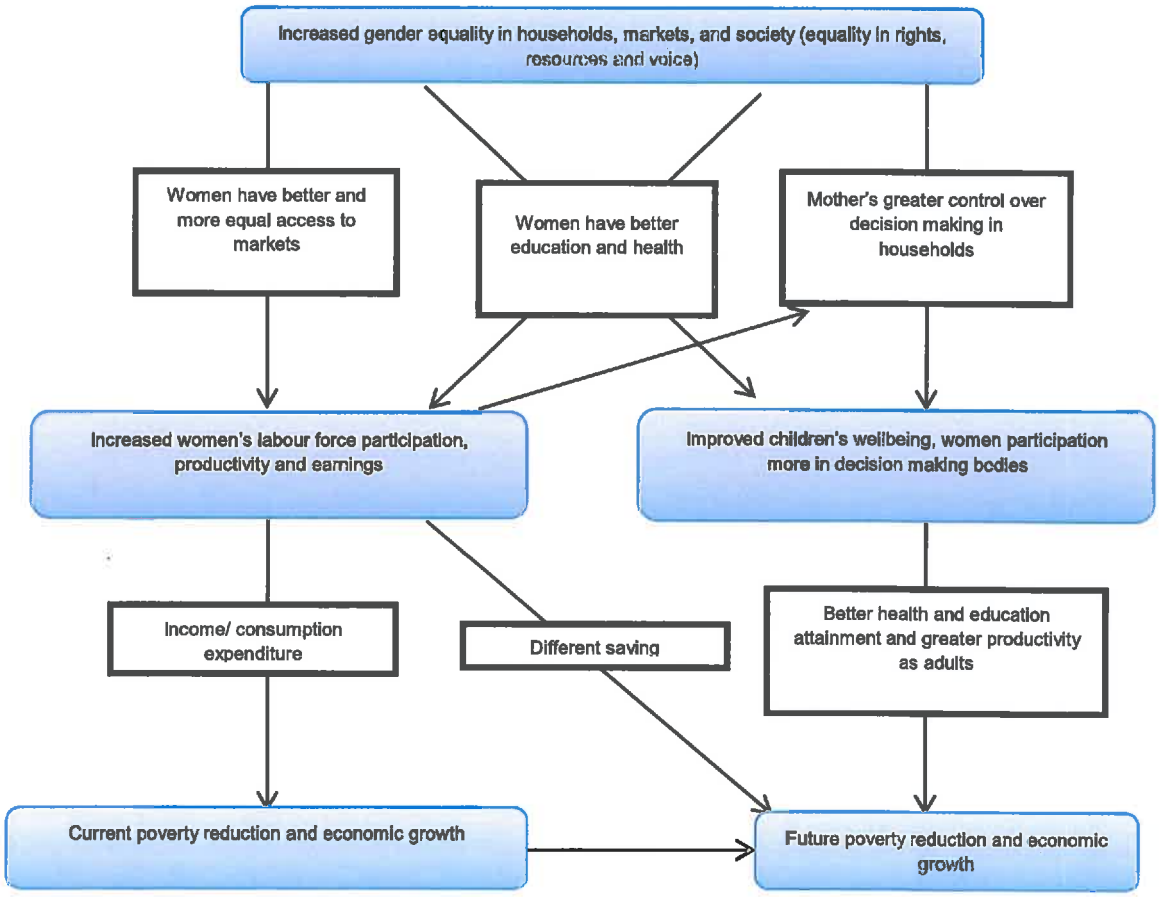


Figure 2-4: Understanding education, gender empowerment, growth and poverty reduction
Source: Manjengwa *et al.* (2012:68)

People with less education are more likely to be unemployed and when employed, earn low salaries or enter low-income jobs. According to the Chamber of Mines (2016), the mining industry highly encourages women's participation in mining at all levels. Women are also encouraged to enter the mining sector through several bursaries. Even though this incentive takes some years to trickle down, but it is a good opportunity for young women to secure their careers in the mining sector.

2.6 Mining

Mining involves extraction of mineral resources mostly from the natural ground. Down and Stock (1977) define mining as a procedure that is characterised by the extraction of minerals from the worlds outside layer for the advantage of man. Down and Stock (1997) endeavours a change in definition, while emphasizing specific recuperation of minerals and materials from the world's outside, other than as of late framed natural materials (Bryceson, and Jønsson, 2010). This suggests that mining is a defined procedure which involves the extraction of profitable minerals or other geographical materials from the earth's surface. Few materials are distinguished as recuperated materials from mining. These includes bauxite, nickel, valuable metals, press, lead, limestone, coal, phosphate, shake salt, tin, jewels, uranium, and molybdenum among others.

From a more extensive point of view, mining can incorporate the extraction of oil, petroleum gas, and water. An audit of the archaeological records uncovers the most established known mine to be the "Lion Cave" in Swaziland. Few existing literature concurred on the eight basic and regular strides on which mining strategy is based, in particular: Prospecting to locate mineral;

a. Exploration for identification of the extent and value of minerals;
b. Resource assessment for scientific estimation of the extent and grade of the resources;
c. Mine planning to evaluate the economically recoverable portion of the resources;

d. Feasibility study of the total project upon which decision as whether to proceed;

e. Exploitation to extract minerals on a large scale; and

f. Reclamation to make land where a mine had been suitable for future use

Consequently, mining can be done is several ways. Firstly, mining is done on the mining surface, open cast, quarries, or different diggings or drillings that are interested in the climate. This type/method of mining is the most prominent and most amazing based on the quantity of open cast mines found over the globe. The second type/method of mining is those mines that are done underground. This involves entering the earth through shafts or passages. This is considered terribly unsafe as there is likelihood of mining shafts collapsing. Thirdly, there is the extraction of minerals and fills through boreholes. Again, there is submerged mining that is otherwise called digging, which is right now covering the potential mining of the profound seas (Down and Stock, 1997). The "exaggerated masculinity" (Mercier & Gier, 2007: 997) of mining is an issue that is linked to continued vulnerability of women in the mining sector and mining communities in general. This construction of women as miners' wives places them at the intersection of "capitalist exploitation and patriarchal exploitation" (Lahiri-Dutt & Macintyre, 2006: 2). At the same time a balanced view that provides equal opportunities for gendered mining sector and communities is important in that such an approach would enable the proper accounting of women's reproductive work benefits for the mining companies, which would effectively off-load the burden and the cost of reproducing present-day workers and the next generation of workers for the mining companies onto poor and marginalised women.

2.7 Complexities of Mining communities

Mining community is a community that is created around mining area and mostly houses the miners and their families. Mines have economic, social and environmental consequences on the local, regional and national community. Mines provide the local and national community as well as the migrants with jobs and other economic opportunities. Mines further improve the community's livelihoods and also generate

the foreign exchange and tax revenue. Mining companies recognise their role to contribute to the socio-economic development and sustainability of the mining communities (Chamber of Mines, 2017). The mining companies contribute to the mining communities in several ways:

- *Through both direct and indirect job creation, and particularly local recruitment.*
- *Through small business development and local procurement, including expenditure by employees.*
- *By providing training and development, bursaries, and learnerships.*
- *By improving access to healthcare and improving living conditions (water, sanitation, roads).*
- *Through their corporate social investment and local economic development programmes.*
- *Through the taxes and levies paid locally* (Chamber of Mines, 2017:29).

Even if there is existing literature on how mining and mining activities affect communities physically and economically, there is limited literature on how communities living near or around mines are affected by mining. This is also emphasised by Solomon *et al*, (2008) who note that there is a huge gap on literature on how mining and mining activities can be associated with the social wellbeing of the local communities. These contributions are considered gigantic. It has been attested after some time that it has an essential establishment for human advancement through the production of wealth (Acheampong, 2004). Mbedi (2004) reports that, in 2001, the mining business delivered more than 6 billion tons of Crude minerals prized at trillion dollars over the globe.

Illegal mining is also an issue within mining communities. The United Nations Industrial Development Organization (UNIDO) perceives and set up that in spite of the business

era potential, the joblessness and landlessness (coming about because of large scale mining) have forced individuals into small scale mining. The UNIDO additionally evaluates and announced in 2001 that more than one million individuals are straightforwardly engaged with small scale mining operations in Latin America alone). It is acknowledged that in countries like Nigeria, South Africa and Ghana among others, there are people that are associated with earning a living from engaging in illegal mining exercises. In an examination directed by the United Nations on high quality mining and poverty deterioration in Ghana, there might be 50,000– 80,000 individuals that are occupied with illegal small-scale mining exercises in Ghana (Carnegie, *et al.* 2000). Illegal miners earn some form of unrecorded income to sustain their household and communities.

The mining companies have reasons to contribute towards enormous physical and social programmes for the communities in which their workers live in. For example, mining companies may contribute in developing streets, schools, water supplies power and later in health facilities for or in mining communities. Some mining communities have for the most part been the recipients of some of these services from the mining companies. The situation is distinctive while mining communities continue to expect those services from other institutions like government and local municipalities (Anyemedu, 1992; Siebe, 2017)).

Like any other employees from any different institution, employees from mining companies must have some form of benefits from their mining companies. Globally, it is reported that mine workers are not slaves but contracted employees of the mining companies who have rights to salary and other benefits (Anyemedu, 1992). Astoundingly, change had been realized from that time when mining labourers were working and at the same time living in dehumanized poor conditions where no consideration was paid to cleanliness or security of their well-being. This has made a few authors attempt to examine health condition of individuals working and living in or around mining areas, (see authors like Koba 1968; Bryceson, Jønsson, and Verbrugge, 2013). This change has made authorities such as government and local municipalities including mining companies to take responsibility with respect to ensuring better living standards for all people living in mining communities.

Well-being has been portrayed by World Health Organization as a condition of quality state on physical, mental and social prosperity of a person/individual; this by suggestion does not simplify the absence of disease and illness (World Health Organization, 2005). It infers any alteration or changes in any of the living cells of the body framework which dangers survival or debilitates life in the earth stimuluses' sicknesses. There are a few works that concentrated on the human wellbeing consequences of mining. Literature shows that several authors had researched and studied on how mining affect mine workers and everyone living in mining communities (Kitula, 2006; Siebe, 2017).

Mining environment is associated with poor working conditions which lead to poor health and endanger workers to possible injuries. As indicated by Stephens and Ahern (2001), mining remains top amongst the most unsafe occupations on the planet, both as far as here and now wounds and fatalities are concerned, yet in addition because of long drag effects, for example, cancers and respiratory conditions, for example, silicosis, asbestosis and pneumoconiosis also persist which can be directly linked to the health impacts of mining to mine workers and communities. In spite of the fact that these mine health impacts have been accounted for, generally as a rule mining health investigations on the wellbeing of employees are generally separated to mineral and metal-particulates, since the mix of these materials and metals are a critical source at mines in any given area, (Chiaradia, *et al.* 1997).

A few activities that were made with respect to investigations of mining and wellbeing by category of mine procedure are isolated into two - underground and open cast mines. Authors like Stephens and Ahern (2001:73), note the curious difficulties related with underground mines which is said to result in the serious "troubles for representatives as far as their dangers of hypertension; heat fatigue; myocardial dead tissue and sensory system issue." Studies of open cast mining concentrate more on coal, stone and difficulties that are identified with wellbeing dangers related to air pollution (Stephens and Ahern, 2001).

Research has gone further to evaluate the effects of mining areas and how such areas have been affected by the overall plague of HIV/AIDS. This is clear and extremely obvious in the investigations of South African mines. A few examinations, for example, (Jochelson, *et al.* 1991; Campbell 1997; Williams and Campbell, 1998; Campbell and Williams, 1999; Campbell 2000; Corbett, Churchyard et al. 2000) attempted to concentrate on the condition of the gold mines of South Africa. Discoveries by scientists confirm that vagrant work plays a dynamic and vital part to the extent that the South African mining segment is concerned. The transient nature of mining has serious repercussions with respect to the spread and scourge of HIV/AIDS (Siebe, 2017). In the meantime, a few authors have examined how HIV/AIDS affected the mining industry. This can be found in the investigations of (Williams and Campbell, 1998). In them they revealed and recognized the past activities of a few mines that have made extraordinarily headway in starting HIV-counteractive action programmes, but yet these seem to have had a negligible effect on vulnerability to HIV/AIDS within mining communities.

Stephens and Ahern (2001) distinguish the gap that exist between the living condition of women living in mining communities and innovation strategies to improve the living conditions of women living in mining communities. Stephens and Ahern (2001) further indicate that there is little literature focusing on the investigation of innovations or strategies to improve living conditions of women living in mining communities (Macdonald, 2017). These include strategies to combat diseases associated with mining activities. Mining activities may impact diseases such as malaria, diarrhoea, upper respiratory tract infections, skin disease, acute conjunctivitis and accidents constitute, according to biostatistics, obtained by FOE – Ghana in Korle-Bu Hospital in a survey in 2001. Skin rashes are widespread particularly among communities living along rivers and streams which regularly receive leaked cyanide waste waters and other mining wastes within concessions (Akabzaa and Darimani, 2001; Huggins, Buss, and Rutherford, 2017).

2.8 Gender and Mining

'Gender' refers to the socially constructed roles ascribed to by men and women and the gender perspective considers the impact of gender on people's opportunities, social roles and interactions (CATAPA, 2017). Mining draws many people (including women) from all over a country with the hope of finding better job prospects. Nevertheless, in South Africa and many other countries worldwide, jobs in the mining sector were reserved for men and the mining law did not allow women to work underground. However, in 1994, the government of South Africa introduced several strategies that opened mining sector to disadvantaged people including women (Eftimie et al, 2012). Various acts including mining legislations were introduced, which required mining companies to review their demographic profiles and instituted laws that prohibits women from being excluded in the mining operations (Doret, 2016). Like any other person, women arrive at newly developing mining areas with high hope and enthusiasm. Hence, the development of large-scale mining activities tends to bring forth many people to mining areas.

While other people become successful in securing their dream jobs in mining, the unsuccessful ones end up surviving at the mercy of any available job regardless of how meagre the pay is (Muchadenyika, 2015). Intensive mining operations reduce chances of women to being employed in the mining industries, thus increasing women's vulnerability levels (D'Souza *et al.*, 2013). Queensland Resources Council (2012) cited in Laplonge (2015) observed that in countries like Australia and Canada gender employment inequality is highly seen in mining areas. Thus, women do not have equal access to employment opportunities in the mining sector. Similarly, in Indian mines, it is reported that there are no work opportunities for women (Muchadenyika, 2015).

Women tend to be limited in terms of opportunities within mining areas. Academy for Continuous Professional Development (ACPD) (1995) acknowledges that opportunities for women in mining and mining communities are limited. Laplonge (2015) indicates that the reasons behind inequalities in mining employment are politically and socially influenced by the rights of women to participate in mining labour.

In agreement to this, Musvoto (2001) submits by emphasising that women remain unemployed and live in poverty within mining communities. The women in Marikana contradicted the fact that mines are only inhabited by the males and their contributions to mining sector are purely sexual (Naicker, 2016). Macdonald (2008) citing Mahy (2011) and Bashwira *et al.* (2014) differs with this arguing that development of mining tends to develop many incomes generating opportunities for mining communities especially for women. He further argues that mining communities give options for women who choose to generate income through prostitution (Macdonald, 2008; citing Mahy, 2011 and Bashwira *et al.*, 2014).

Even though the range of economic opportunities for women may be limited in mining communities, Macdonald (2014) argues that women engage in sex-work by choice and not because there are no other options. Bryceson *et al.* (2013b) agrees with Macdonald (2014) that most women living in mining informal settlements wish to be the real wives of *"men"* mine workers rather than being sex-workers. Solomons (2016) submits that informal settlements with no access to basic services and high levels of poverty have cropped near and around the mines. There are many factors that increase the vulnerability of women in mining communities. Unemployment is high among women in these communities, creating more dependence on men (*ibid.*). Muchadenyika (2015) corroborates with the view of Solomons (2016), while noting that women residing in mining communities are exposed to several challenges. Thus, women end up being vulnerable to rape, financial dependence, violence and various diseases (Solomons, 2016).

Muchadenyika (2015) citing Bose (2004), states that women are more vulnerable to mining's negative impacts. Muchadenyika (2015) further indicates that vulnerability of women to environmental degradation is very high within mining communities. This is because women spend lot of time fetching wood, water and ensuring food security for their families (Muchadenyika 2015). These are normally women's activities or responsibilities in different cultures. However, the harsh living conditions of mining communities and environment increase women's vulnerability to health and other socio-economic activities.

Most men who migrated to the mines would send money back home and intended to return home once the contracts expire. However, the situation has changed as the wives and children have joined them in mining communities. Naicker (2016), states that the wives and children have joined their fathers with the hope of securing jobs in and around the mines. Existing literature shows a huge gap and criticism on the company's human rights obligations which promote gender equality in mining as expressed on the United Nations Guiding Principles on Business and Human Rights. As noted by Ahmad and Lahiri-Dutt (2006) and Lahiri-Dutt (2012a), there is a clear divided role for women and men in an indigenous community.

The demarcated division of roles between genders therefore results in mining activities affecting men and women in a different way (Lahiri-Dutt, 2006). For instance, Lena *et al.* (2014) citing Ahmad and Lahiri-Dutt (2016) argue that any form of environmental degradation and loss of resources caused by mining operation will in one way or another impact on women than men. Again, the loss of resources and fertile land for subsistence and commercial farming due to mining operation lead to women losing jobs (Lena *et al.*, 2014). Due to loss of resources and fertile land, women tend to generate a living through informal sector which among others include prostitution (*ibid.*).

In many indigenous mining communities, women rely on agricultural activities to make a living. On the other hand, men tend to benefit in mining development through general labour. Hill *et al.* (2016) emphasise that the only way to ensure central commitment of any human right policy is through ensuring issues of gender equality and women's rights. Hill *et al.* (2016) further elaborates that if issues of gender equality and women rights are not ensured, it would be meaningless to develop and implement any human rights policy. In short, women in the mining sector and in mining communities face multiple, complex and dynamic forms of vulnerabilities which however can be addressed and better managed, which are:

- *Safety Vulnerability:* Although a patriarchal and sexist culture is not only dominant in the mining sector, but generally perversely applicable in the whole country, its tentacles are strong in mining communities. Women are generally exposed to risk of sexual harassment, even sexual violence, directed at them by male colleagues, husbands, acquittances, strangers and illegal miners. This becomes more acute for women who have to work in underground conditions or who move in mining communities at night to access toilets/bathrooms located far away from main dwelling place or to access firewood or water from nearby streams/forests in which instances the women are often especially vulnerable. This is even worse in crowded conveyances, poorly lit tunnels and work areas coupled with the general lack of toilet and changing facilities, and the fact that there are very few other women working near them, all make working underground more difficult for women than men on average. The likelihood of women being vulnerable to rape, murder or being asked to trade sexual favours for employment or other benefits or being placed in more junior positions with less pay than their male counterparts increases. The need to develop mitigation measures to stem off these challenges is paramount. At the same time, underground mining safety vulnerability for women can be addressed through improving lighting in working and travelling areas; providing safe toilet, shower and changing facilities; and (in some mines) ensuring that women have work buddies who make sure they do not have to move around quiet areas on their own. Along with physical safety precautions, it is acknowledged that the best way to ensure women's safety at work is to change the mindset of their male colleagues. However, gender critics argue that in a patriarchal and sexist culture as typified by South Africa, men's attitudes towards women need to change in order for workplaces and communities to be safe.
- *Physical limitations vulnerabilities:* Physiologically studies have confirmed that most women do not have the same levels of physical strength (especially in terms of stamina and weight-lifting) as most men – and this has a material impact on their ability to do much underground work. And, as has been found in physical work capacity testing, women entering the industry tend to be less physically active and fit, and thus less able to cope with the fitness and heat-tolerance levels required for working in the mining sector. These tests have

been noted not to be friendly and adapted to women who are pregnant, breastfeeding or menstruating as an example (Benya, 2009: 127). Working conditions can also make work more physically demanding than is safe. For instance, in situations where women's toilet facilities are far away from the place of work, women may refrain from drinking while on shift, resulting in dehydration and making it even harder to complete physical tasks. Ensuring that PPE and work clothing fits properly, and is fit for purpose for all genders (including women), is key to allowing female employees to be fully and safely active in their jobs.

- *Equipment Constraints Vulnerability:* A significant challenge to women in the industry is the fact that equipment – whether overalls, personal protective equipment (PPE), boots or tools – has been designed and manufactured with men in mind. This means overalls are too big or too tight (or both) and cannot be easily adjusted, and necessitate complete undressing for use of toilet facilities, boots that are too wide and long, gloves that do not keep foreign matter out, and tools designed for larger hands and weight-lifting capabilities. These equipment constraints vulnerability compromises the capacity of women to work and provide for their families. At the same time, as the mining industry becomes more mechanised, physical strength and stamina will become less important than fine motor skills, dexterity and problem solving – all of which are more easily acquired by new entrants to the workforce irrespective of gender or sex.

2.9 Towards a Informal Mining Settlement and Gender Framework of Analysis

From the on-going review of literature, it is interesting to note that an informal mining settlement and gender framework of analysis picture begins to emerge as illustrated by Figure 2-5 below.

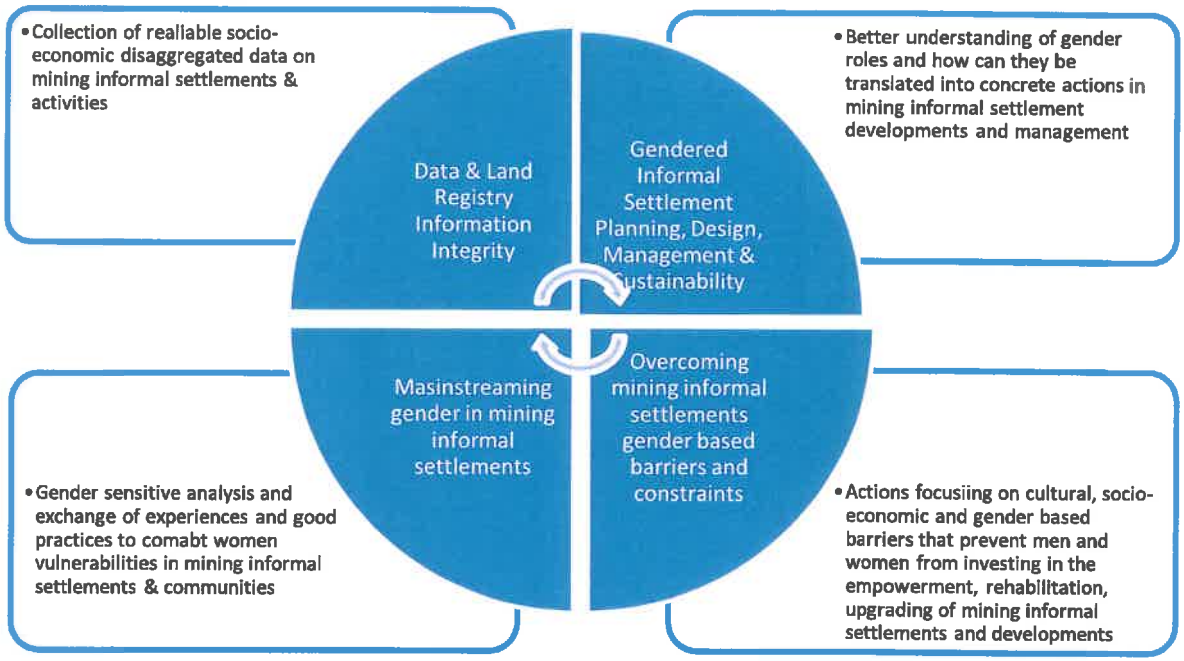


Figure 2-5: Informal Mining Settlement and Gender Framework of Analysis

Source: Authors own compilation, 2018

Figure 2-5 presents a framework of analysis that brings together the gender, mining and housing informal settlement challenges and possible solutions.

2.10 Conclusion

Though mining plays a significant role in job creation within communities, women tend to be left out on those benefits. Women living in mining communities are excluded from opportunities in mining by mining companies due to the nature of working environment in mining. Like any other communities, mining communities includes both men and women. The exclusion of women to opportunities in these communities exposes women to different vulnerabilities within mining communities. Contrary to the promises of contributing to socio-economic development, mining companies provide poor labour conditions for women, pollute the environment, clear the environment for mining, leading to food insecurity. For instance, as men spend more time working in mines, women stay home undertaking household chores and ensuring food security

and this relate women directly to infrastructure and basic services. Women walk long distance to collect water and end up being exposed to water related diseases.

Among other vulnerabilities, the dependence on men as the source of income leads women to have no voice in the household. Other factors like lack of infrastructure and basic services are seen as being overly exposed and associated with women, hence they affect women than men leading to women being vulnerable due to lack or inadequate infrastructure and basic services. Existing literature on vulnerability recommends various strategies to overcome vulnerability. Among others, these includes; ensuring property ownership, reducing and building independence in terms of employment opportunities and economic empowerment, improving human capital and social protection with respect to women.

3. CHAPTER THREE: SMASH BLOCK INFORMAL SETTLEMENT

3.1 Introduction

Chapter three presents the case study that is Smash Block informal settlement. The chapter provides an overview of the area and its location. The chapter shows the demographic characteristics of Smash Block Informal Settlement. When presenting the socio-economic characteristics, the chapter pays attention to the following: education level, economic status, religious, health and recreational facilities found in Smash Block informal settlement. The chapter also reviews municipal and mining plans/projects with respect to what extent the mining companies capacitate the Smash Block Informal Settlement community (especially women) in terms of improving their living standard.

3.2 Study area

Smash Block is a small Informal Settlement located close to Chronimet Chrome mining area, 20km from Thabazimbi central business area. The Smash Block informal settlement came into existence approximately around 1994 (Thabazimbi Municipality Spatial Development Framework, 2007). The settlement measures +/- 236 ha (Thabazimbi Integrated Development Plan, 2015/2016). On the Southern side of the Smash Block Informal Settlement is a 300m open cast mining fence. On the Northern side of the settlement is a gravel road just close to the chrome mines. Thabazimbi municipality is in the western part of the Limpopo province.

3.3 Demographic characteristics

The 2001 national population census estimates that the total population of Smash Block Informal Settlement is 11 621 (Statistics South Africa, 2011). However, the 2011 national population census shows that the population decreased from 11621 to 11242 (*ibid.*). The trend in decrease is also evident during the 2016 Household Community surveys with the population now being indicated at 10 725. Table 3-1 overleaf shows the population structure of Smash Block informal settlement by age and gender for 2001, 2011 and 2016. The typical booms and reduction in total mining populations is

characteristic of any mining areas as spatial socio-economic dynamics occur linked to job/employment opportunities as well as market performance and trends in the mining sector.

Table 3-1: Population dynamics of Smash Block informal settlement

CENSUS	2001			2011			2016		
AGE	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL
0-4	928	938	1866	520	573	1093	497	544	1041
5-9	479	506	985	182	175	356	173	159	332
10-14	260	224	484	111	120	231	101	109	210
15-19	237	327	564	231	158	389	203	142	345
20-24	488	773	1261	1046	592	1638	1004	568	1572
24-29	492	1030	1522	1583	734	2317	1538	715	2253
30-34	604	985	1589	1256	527	1783	1226	515	1741
35-39	798	831	1629	744	357	1101	712	339	1051
40-44	519	304	820	471	271	742	457	256	713
45-49	333	153	486	503	214	717	476	204	680
50-54	132	36	168	375	101	477	352	90	442
55-59	84	44	128	194	57	252	181	47	228
60-64	30	17	47	52	31	83	43	25	68
65-69	20	12	32	17	7	23	11	7	18
70-74	10	13	23	17	4	21	14	2	16
75-79	11	-	11	4	2	6	4	1	5
80-84	3	3	6	2	2	5	2	2	4
84+	-	-		5	3	7	5	1	6
TOTALS			**11621**			**11242**	**6999**	**3726**	**10725**

Source: Stats SA (2011) & Community Survey, 2016

As per Table 3-1, there are more men than women in the area. This is so because mining is a historically male dominated industry. The dominant age group ranges from 15 to 64 and this group is characterised by more men than women. The dominant group is characterised by men who are still able to work in the mines and men who are economically active. Most males work in the mines, those that are not working are looking for employment from the mining companies primarily. Figure 3-1 overleaf reveals that the study are is male dominated, which has implications regarding male dominance that accentuates women vulnerability in the area. This also resonates with the need to generate patriarchal and sexist cultural gendered solutions and interventions if women's vulnerabilities are to be reduced or if possible totally minimised.

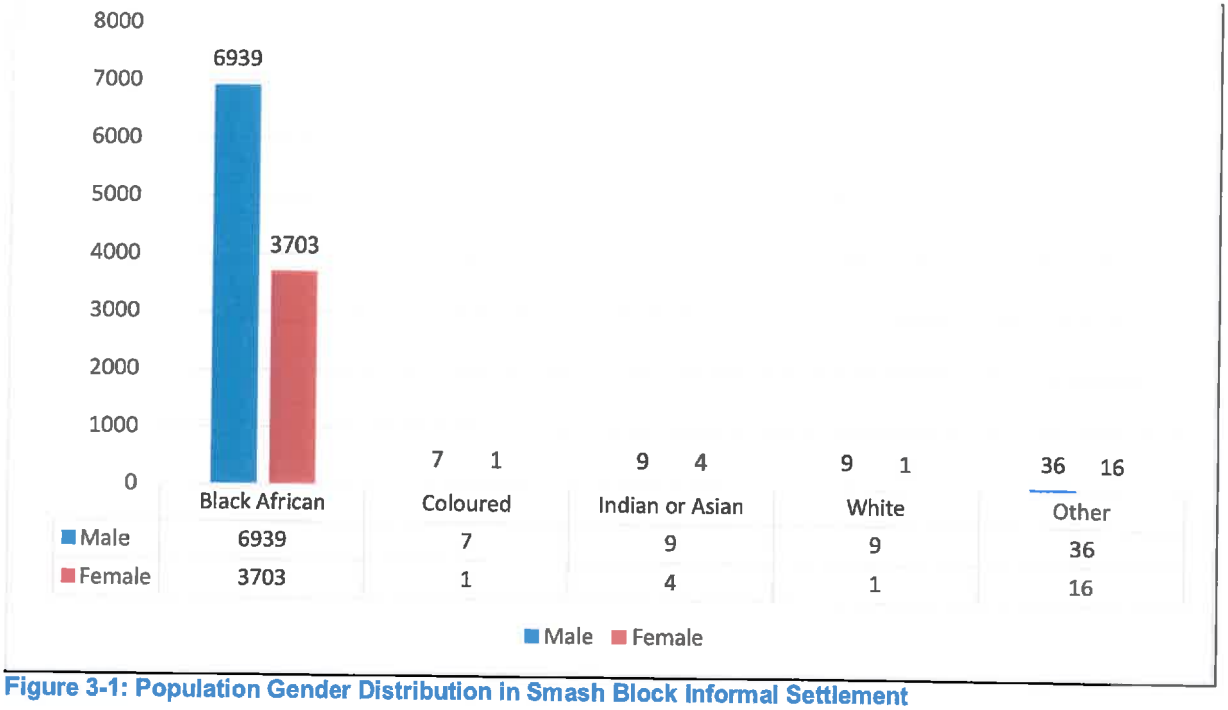


Figure 3-1: Population Gender Distribution in Smash Block Informal Settlement

Source: Stats South Africa Community Survey, 2016

Table 3-2 presents the gender status in the study area. The dominance of males over females in the study area is again very clear. The unbalanced sex ratio has implications regarding social order, sexual relationships and orientations with consequences linked to infidelity, cheating, sexual and social violence. This can be explained by the magnetic force of mining attracting mining labour which brings miners with economic power to an area. In this set-up, the economic structure of an area is re-defined and a new economic order in which money is central is created. Women who lack the same economic and market competitiveness end up adopting other means for survival such as engaging in prostitution or sex in exchange for other benefits risking contracting and spreading HIV/AIDS.

Table 3-2: Gender by Marital Status

	Married	Living together like married partners	Never married	Widower/ Widow	Separated	Divorced
Male	3077	595	3232	36	38	22
Female	1285	523	1843	41	17	16
Total	4362	1118	5075	77	55	38

Source: Stats South Africa Community Survey, 2016

From Table 3-2 we can also deduce that there is a high preponderance of both males and females who have never been married. At the same time significant figures of couples living together like married partners is also a distinguishing feature. These issues and read together with separated, divorced and widower/widows have resonated with the fractured nature of mining settlements with implications for women vulnerabilities where applicable.

3.4 Socio-economic characteristics

This section discusses the socio-economic characteristics of Smash Block Informal Settlement in Thabazimbi Local Municipality. The settlement has many socio-economic and institutional spaces that have been zoned (informal zoning) for special use. Table 3-2 below shows the existing land uses in Smash Block Informal Settlement. However, the demarcation for these special services is very chaotic, followed no proper order and in some instances the uses are a health hazard. For instance, zoning graveyard next to residential unit somehow pose social hazard to the people.

Table 3-3: A summary of existing land uses within Smash-Block Informal Settlement

LAND USE	QUANTITY
Dwelling units	2337
Informal business	85
Sports fields	3
Primary school	1
Crèche/ pre-schools	3
Mobile clinic	1
Taxi rank	1
Churches	5
Graveyard	1
Clinic(under construction)	1

Source: Thabazimbi Integrated Development Plan, 2015/2016 (August 2017)

However, while municipal and mining plans to upgrade and improve the Smash Grab Block Informal Settlement exist, the downside is the slow pace of implementation , which raises prioritisation concerns within the municipal governance system. In this

context, delayed interventions mean delayed resolution and tackling of infrastructure and governance systematic issues that accentuate women's vulnerability in the study area.

3.4.1 Education Level

Generally the residents in the study area have basic numeracy levels with over 75% of the population having grade 12 and less qualification. Table 3-4 presents statistics on the education level in Smash Block Informal Settlement.

Table 3-4: Education level in Smash Block Informal Settlement

Educational level	Total Number of People	Percentage
Gade 0	145	1,351729281
Grade 1 / Sub A	177	1,65004195
Grade 2 / Sub B	189	1,761909201
Grade 3 / Std 1/ABET 1Kha Ri Gude;SANLI	296	2,759392188
Grade 4 / Std 2	347	3,234828004
Grade 5 / Std 3/ABET 2	468	4,362822784
Grade 6 / Std 4	512	4,773002703
Grade 7 / Std 5/ ABET 3	838	7,812063019
Grade 8 / Std 6 / Form 1	829	7,72816258
Grade 9 / Std 7 / Form 2/ ABET 4	1159	10,80451198
Grade 10 / Std 8 / Form 3	1024	9,546005407
Grade 11 / Std 9 / Form 4	1180	11,00027967
Grade 12 / Std 10 / Form 5	1600	14,91563345
NTC I / N1/ NIC/ V Level 2	6	0,055933625
NTC II / N2/ NIC/ V Level 3	6	0,055933625
NTC III /N3/ NIC/ V Level 4	3	0,027966813
N4 / NTC 4	7	0,065255896
N5 /NTC 5	1	0,009322271
N6 / NTC 6	9	0,083900438
Certificate with less than Grade 12 / Std 10	1	0,009322271
Diploma with less than Grade 12 / Std 10	1	0,009322271
Certificate with Grade 12 / Std 10	12	0,111867251
Diploma with Grade 12 / Std 10	12	0,111867251
Higher Diploma	4	0,037289084
Post Higher Diploma Masters; Doctoral Diploma	2	0,018644542
Bachelors Degree	3	0,027966813

Educational level	Total Number of People	Percentage
Bachelor's Degree and Post graduate Diploma	0	0
Honours degree	4	0,037289084
Higher Degree Masters / PhD	0	0
Other	0	0
No schooling	850	7,923930269
Unspecified	0	0
Not applicable	1042	9,713806283
Total	10727	100

Source: Stats South Africa Community Survey, 2016

From table 3-3, we can deduce that a significant proportion i.e. approximately 8% of the population have had no schooling. This has implications regarding the need to create low end skill jobs if such groups must be targeted for employment opportunities in the study area. In addition, there are three nursery schools in the study area catering for children below six years. These nurseries are run by individuals and Non-Governmental Organisations. These day care centres are *Kgotso* Day Care Centre, *Kgatelo Pele* Day Care Centre and *Eyethu* Day Care Centre. Like any typical informal settlement, some of the nursery schools were built from sub-standard materials as shown in figure 3-2 below.



Figure 3-2: Picture showing educational facilities in Smash Block Informal Settlement

Source: The researcher's pictures (August 2017)

The Smash Block Informal Settlement community is served by only one primary school, catering for children from grade one to grade seven. The primary school is built of brick and mortar since it was sponsored by Chronimet Mining Company. Learners who proceeded to study for high school (i.e. from grade 8 upwards), study in neighbouring communities outside of Smash-Block Informal Settlements. This has implications regarding transport or accommodation costs or the need to create alternative arrangements to facilitate post grade 7 learning for children from the study area. However, there is an educational forum that is responsible for the day to day running of education within the area, which is in itself a potential mechanism for addressing education vulnerabilities linked to women or the girl child in the study area.

3.4.2 Economic status

As shown in table 3-5, approximately 41,9% of the population is employed. The remaining 49,1% is either unemployed or have completely lost hope regarding possibility of securing employment in their lifetime.

Table 3-5: Official Employment Status for Smash Block Informal Settlement

Status	Number	Percentage
Employed	4503	41,9821
Unemployed	2166	20,19392
Discouraged work-seeker	313	2,918143
Other not economically active	2112	19,69047
Age less than 15 years	-	0
Not applicable	1632	15,21536
Total	10726	100

Source: Stats South Africa Community Survey, 2016

As shown in table 3-6 most of the male population in this area are employed as compared to the female population. To a large extent, the female population in the area is classified as home makers. This traditional feminine stereotyping and sanitisation of women as *"care givers"* or *"health workers"* is not only reinforced in the communities and homes but replicated in the mining companies, wherein women are

given roles to clean and cook for mine workers as examples. The need to innovatively disrupt and re-invent gender vulnerability frameworks in mining companies and communities remain a running theme requiring continuous change manage interventions.

Females play a role of taking care of the kids and doing all sorts of household chores ranging from fetching water and cooking. There are fewer than forty pensioners in the area and less than twenty-five seasonal workers. Table 3-6 shows the income levels in Smash Block Informal Settlement. According to table 3-6, the majority of people do not have any income. Females are the most affected by lack of access to some form of income. By 2001 women with no access to income were estimated at 4781 while males were estimated at 1244. The table shows the dominance of male as income earners across all income brackets. The 2011 census shows that out of a total of 7000 job seekers only 4 800 are employed. This trend has remained relatively the same during the 2016 Stats South Africa community survey.

Table 3-6: Economic status of Smash-Block Informal Settlement Community

INCOME PER MONTH	MALE	Percentage (Total Male)	Percentage Total Population	FEMALES	Percentage (Total Male)	Percentage Total Population
No income	1244	27,9990%	13,201740%	4781	96,00401%	50,73%
R1-400	76	1,710555%	0,806537%	58	17,22891%	0,615515%
R401-800	206	4,636506%	2,186140%	64	1,28514%	0,6791892%
R801-1600	914	20,571685%	9,699671%	44	0,88353%	0,466942%
R1601-3200	1676	37,72225%	17,786267%	19	0,381526%	0,201634%
R3201-6400	262	5,896916%	2,780430%	14	0,281124%	0,148572%
R6401-12800	65	1,462975%	0,689801%	-	0%	0%
Total	4443			4980		9423
Total Percentages		100%	100%		100%	100%

Source: Stats SA (2011)

The economic outlook status quo presented in Table 3-6 can be explained partly by the fact that mines have historically tended to hire males because of the highly over-masculinised constructed nature of the industry that has been perceived and

constructed as requiring a lot of physical strength/power (Werthmann, 2009). Looking into the future, it is hypothesised that it is unlikely that the situation may change especially in the short to medium term. While the population of women is significant at above 35%, the male population at approximately 65% remains dominant (StatsSA, 2016). In this respect, the male population by virtue of a demographic advantage end up having better access to work and by extension earning better or good incomes compared to their female counterparts. There are many economic activities within smash Block informal settlements that present entrepreneurial and employment opportunities. At the time of the study, there were about eighty-five (85) small-micro-medium enterprises (SMMEs) ranging from salons, motor car repairs, dress making, beer halls and street markets where primarily women sold clothes and vegetables that were operational in the study area. Beer halls were a dominant business as community members tended to socialise and relax imbibing beer from the beer halls. Most of the small enterprises were located along major taxi routes within the community, with Mamba Street being the prime economic street or economic centre. There was an active business forum in place to manage the affairs of all prospective business people in the area. Figure 3- 3 presents pictures showing some economic activities in Smash Block Informal Settlement.



Figure 3-3: Pictures showing some economic activities in Smash Block

Source: On site pictures taken by the researcher (August 2017)

Besides the number of SMMEs operating in the area, there was also a booming taxi industry. This economic sector was backed by a taxi association that manage the day to day affairs of taxi and passenger transport issues affecting the community. Along major taxi routes, there were many street vendors selling various items ranging from vegetables to clothing items. Figure 3-4 presents employment status in Smash Block Informal Settlement.

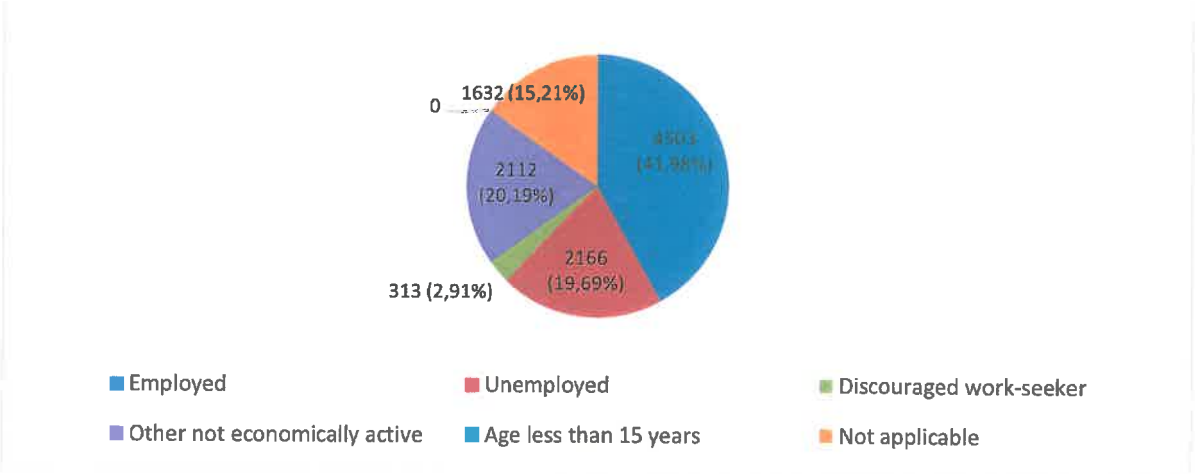


Figure 3-4: Employment Status in Smash Block Informal Settlement

Stats South Africa Community Survey, 2016

From figure 3-4 we can deduce that approximately 42% of the population is employed. The remaining 58% is technically unemployed, which raises challenges of unemployment, poverty and inequality in the Smash Block Informal Settlement. Given the skewed nature of male dominance and access to resources, this has implications regarding socio-economic vulnerabilities for the unemployed and women in particular in the study area.

3.4.3 Religious Facilities

There were approximately fifteen (15) religious sites in the area. The structures vary from brick and mortar to shack materials. The denominations are as wide as the structures on site, but with a strong bias to African Zion Church Worship. From the researcher's observation, these sites were used mostly on Sundays. This has

implications regarding possible weekly issues for other negotiated socio-economic empowerment uses. The religious formations play a critical role in voicing and championing social justice matters in which women's vulnerabilities take centre stage. The extent to which women and religious institutions played a role in reducing and combating women's vulnerability was subtle and not pro-actively involved. However, scope and leverage to use religious and social formations as women's vulnerability steering mechanism, access and bargaining tools presents opportunities for women's vulnerability change and transition defining moments.

3.4.4 Health Facilities

There is a mobile or temporary clinic which provides health care for the residents within the informal settlement. The formal/permanent clinic structure is currently under construction. There are also many traditional healers within the informal settlement catering for the local community. There is a health community forum responsible for the general health of the community.



Figure 3-5: Pictures showing health facilities in Smash Block

Source: on site pictures taken by the researcher (August 2017)

From Figure 3-5, we can deduce that while health facilities exist in the study area, there is need to upgrade and improve the quality of facilities. Facilities under construction would require to be completed as soon as possible so that the quality and range of health services could be improved. In order to respond to women's health

vulnerabilities such as pregnancy, breastfeeding, mensuration as well as general health ailments.

3.4.5 Recreational Facilities

There were many informal (not planned) recreational areas in the study area. These include three informal sport fields, which are mainly used for soccer and one for netball. Some of the nursery schools provide play areas with minimal facilities for children. There were about twenty-five beer halls that were spotted around the settlements highlighting high demand and access to consumption of alcohol in the area. The lack of proper ablution facilities and a complete provision of sporting disciplines has implications regarding socialisation and development of general motor and learning skills and competencies that can be transferred through sporting for women. It therefore does not need any further emphasis that improving ablution and lighting facilities, improving security and surveillance systems as well as encouraging buddy and group team movements/trips could improve and address women's physical, infrastructure and governance vulnerability aspects of socio-economic development in the study area.

3.5 Housing Types

The types of dwelling units showed that the area was an informal settlement. The area was unplanned with no proper infrastructure in place. The table below shows the types of dwelling units in Smash Block Informal Settlement. Researcher's visit to the site revealed that there are 6891 shacks in Smash-Block and only 78 brick houses. This showed that most of the people could not afford to build brick houses or had questions in terms of tenure security. Table 3-7 shows the dwelling units in Smash Block Informal Settlements.

Table 3-7: Dwelling units in Smash Block Informal Settlement

TYPE OF DWELLING	NUMBER
House of brick/concrete block	749
Traditional dwelling/huts	267

TYPE OF DWELLING	NUMBER
Informal dwelling (shack; in backyard)	1164
Informal dwelling (not in backyard)	1633
Flat or apartment in block of Flats	23
Cluster houses in Complex	7
Semi-detached houses	16
Houses/flat/ rooms	22
Town houses	3
Room/flat let on a property	17
Caravan /tent and others	31

Source: Stats SA (2011 & 2016)

From table 3-7, it can be deduced that there is need to address the housing backlog/deficit in the Smash Grab Informal Settlement as illustrated by the high incidence and prevalence of shacks in the study area. In addressing the Informal settlement upgrading needs, the municipality could consider approaches in which women are galvanised into informal housing co-operatives so that they could be skilled /trained in construction skills and related trades useful beyond the completion of housing upgrading improvement projects (programmes) implementation.

3.6 Social services

There was lack of access to social services and no proper infrastructure in Smash Block Informal Settlement. This section discusses the following services: water supply, sewer, roads, solid waste management, and storm water management and electrical and telephone services.

3.6.1 Water supply

There were four municipal boreholes within Smash Block Informal Settlement – two of which were not working. Current water supply was obtained from the two boreholes, which were connected to the tanks (Service Reservoirs) within Smash Block Informal Settlement. The existing boreholes were not able to meet the current water demand

requirements by the Smash Block Informal Settlement (Thabazimbi Integrated Development Plan, 2015/2016).

3.6.2 Roads

The access road to Smash-Block was a gravel road which branches off from the regional road R511. The area is situated 4km west of R511 and both the local distributor and access streets are major gravel roads (Thabazimbi Integrated Development Plan, 2015/2016). Other shacks in the area have no road access or utilise damaged access streets due to soil erosion and lack or poor maintenance.

3.6.3 Storm water management

The topography of the site can be described as gently rolling and undulating. No proper storm water management system was in place in the study area. This poses a threat to continued soil erosion especially after heavy rainfall. This has resonates with the need to recommend the need for the development of a proper storm water drainage system which should be properly constructed according to the water design engineering standards in order to reduce high soil water erosion as well as damage to water infrastructure piping systems.

3.6.4 Waste management

There are no waterborne sewerage facilities in Smash Block Informal Settlement. There were many basic ventilated improved pit (VIP) systems and this exposed the boreholes to the risk of faecal contamination. This raises the question regarding the development area requirement for the provision of a sustainable water-borne sewer collection system as a long-term solution to the existing water and sanitation services provision inadequacies. The responsible party in sewage collection in this area is the Thabazimbi Local Municipality. There was no waste collection and approved dump sites in the area. The solid waste types that were produced at the nearby areas are mainly general/domestic waste. General waste is a generic term for waste that, because of its composition and characteristics, does not pose a significant threat to the public health if the environment if properly managed. Examples include domestic

waste such as papers, plastics, bottles, card boxes, etc (National Environment Management Act, 1998). Figure 3 - 6 presents a picture showing a skip bin used by the community to deposit waste.



Figure 3-6: A picture showing a skip bin used by the community to deposit waste.

Source: on site pictures taken by the researcher (August 2017)

A number of methods were used for the disposal the disposal of waste in the study area, namely:

- *Trench Method:* the residents dig holes and dispose domestic waste into the pits on daily basis until they get full and close them.
- *Burning method:* this was the type of disposal on which the waste such as papers and boxes were burned.
- *Illegal dumping:* This was the unlawful deposit of waste onto land. It was the most practised method within the area due to lack of waste collection method by the Local Municipality.

Generally, the methods of waste disposal in Smash Grab Informal Setlement promote both air, surface and underground pollution raising the unsustainable nature of the current water and sanitation systems in place. In order to reduce the water and sanitation vulnerabilities in the study area for everyone, women included, there is need

to adopt and implement clean and smart water and sanitation technologies and services.

3.6.5 Electrical and telephone Services

There are overhead electricity lines within the area but there are no houses connections within the area.

3.7 Mining companies in Smash Block Informal Settlement

Mining companies together with Thabazimbi Local Municipality and government departments were expected to provide social services and or assist Smash Block Informal Settlement community like any other community. This section reviews how Cronimet Chrome Mining (CCM) and Anglo Platinum were contributing to Smash Block Informal Settlement.

3.7.1 Cronimet Chrome Mining (CCM)

Cronimet Chrome Mining (CCM) had adopted the following methods in seeking to improve the socio-economic conditions of the Smash Block Informal settlement, namely:

- *Local Economic Development:* In 2010 CCM erected a borehole in the area. This project included the drilling of a 160-metre borehole, erecting two 5 000L tanks and equipping the tanks with pump, tank stands, water lines and a generator. CCM has also been responsible for the maintenance of the water facilities.

- *Employment Forum:* CCM has set in a place for the running of the employment forum in the area. This was done to ensure that where possible, CCM uses local labour for particular activities in the mine. The forum is made of community representatives from surrounding communities including Smash-Block Informal Settlement.

- *Training:* Some of the local employees were trained to become operators in the mines.

- Corporate Social Investment: In 2012 CCM donated books to the value of R10 000 to the Primary School in Smash Block Informal Settlement.

(2012/2013 Thabazimbi Integrated Development Plan).

From the preceding review, it can be deduced that initiatives to support the socio-economic transformation and development of the Smash Block Informal Settlement exist. What can be debated is the adequacy and operational efficiency of these initiatives in reducing the vulnerabilities of women in the study area.

3.7.2 Anglo Platinum

Anglo Platinum has been involved also in activities meant to promote community building and development in the Smash Block Informal Settlement, namely:

I. Anglo Platinum built the Primary School in the area.

II. In 2011 Anglo Platinum committed to assisting the community to develop a comprehensive master plan that will guide development initiatives for the area.

(2012/2013 Thabazimbi Integrated Development Plan).

From this brief review, we can deduce that the mining companies are engaging in activities meant to assist in overcoming the infrastructure and socio-economic development challenges in the study area. One could possibly argue that should a comprehensive master plan for the Smash Block Informal settlement be developed (complete with housing, employment, infrastructure, gender (women) and social justice as critical pillars of transformation, the vulnerabilities linked to women in the study area will be significantly reduced.

3.8 Municipal, Mining Plans/Programmes and Women's Vulnerability

A review of the municipal integrated development plan (IDP), integrated transport plan (ITP) and spatial development framework (SDF) revealed that Smash Grab Informal

Settlement is a priority housing settlement targeted upgrading area. The municipality has further identified government, mining companies and community partnerships as a critical building blocks in resolving human settlement inadequacies in the study area. However, the weaknesses of all these government, municipal and mining companies proposed initiatives and interventions is that they are developed from a generic and intrinsically patriarchal and sexist development paradigm. As a result, the plans, programmes and activities lack a feminist and gender mainstreaming approach and thereby fail to fully address women's vulnerability issues in the study area.

3.9 Conclusion

The chapter has provided a full overview of Smash Block Informal Settlement. The chapter provided background of Smash Block Informal Settlement, paying attention to population dynamics, socio-economic background, housing types, the type of services and the living conditions applicable to the study area with highlights on women's vulnerabilities within the study area. In terms of education level and employment level, the female population was confirmed to be the least educated and least employed. This was explained partly by the fact that most of them dropped out from school at an early age to take care of their societal roles of caring for the families. In terms of monthly income there were more females who receive no income at all as compared to males, while for those females who received receive income, it was established that most of these women earned less than R3200 monthly.

Visible development in this area included the primary school that was built by the mine and the clinic that was under construction which was funded by the local mining companies. Besides the construction of a clinic and the primary school, the local mining companies were assisting Smash Block Informal Settlement community by providing some of the services such as water (through tanks) of which they have to use wheelbarrows to fetch water from the streets. Reconnaissance surveys found out that most often women were the ones who fetched water from the street tanks as their husband were at work during the day. This high water usage was linked to the fact that women needed water to perform various household and domestic chores. There was however, still inadequate provision of basic services such as water, houses,

electricity and better streets facilities. However, the presence of the overhead electrical line could be viewed as presenting an advantage in that should the need for electricity connection be realised, connecting and stepping down the electrical voltage through a sub-station would be easier for the study area. This is because the existing power lines to act as connectors are already present. In a nutshell there was still a lot of development needed in the study area in order to improve the lives of people living in Smash Block Informal Settlement such as provision of educational facilities, health facilities and better houses.

4. CHAPTER FOUR: DATA ANALYSIS AND FINDINGS

4.1 Introduction

Chapter four presents and discusses data results on the vulnerability of Women living in Smash Block Informal Settlement in terms of living conditions related to housing and living environment. A total of ninety-three (93) questionnaires were administered to households women living in Smash Block Informal Settlement to collect information related to their vulnerability. At the same time key informant interviews were held with key resources persons from the Thabazimbi local municipality; Anglo Platinum; Crocimet Chrome Mining; African Zion Church Leadership members; Business Forum; Taxi Association and School Forum. The researcher made use of the term "interviewee(s)" or "respondents" in order to protect the interviewees identity for ethical purposes and in line with the need to anonymise data. Key informants interviewed were conducted in order to complement the quantitative dimension of the study through a qualitative interpretation and understanding of the vulnerability drivers and dynamics in the study area. In this regard, key informants provided in-depth explanations and deep insights with respect to overall patterns and statistical measures thereby adding meaning and sense to the observed generic patterns and distribution of vulnerability in the study area.

4.2 Presentation of findings

Using a statistically derived practical sample size of 93, the researcher used pie charts, graphs and tables to present the research findings. In addition, the researcher also summarised responses verbatim from key informants to highlight the key women's vulnerability in the mining settlement issues raised by research respondents. The selection of these methods of data presentation was motivated by the ease of graphical and textual representation that are easily accessible to the readers.

4.3 Demographic characteristics

This section discusses the demographic characteristics of the study respondents. The interviewee's profile features were discussed through the following variables: Sex of

respondents; Age of respondents, position in the household, race, citizenship, education status and household composition. This is important as it outlines the personal characteristics of the women under study. Table 4-1 presents the gender and marital status of the study respondents.

Table 4-1: Gender and Marital Status of Respondents

	Married	Living together	Never married	Widower/ Widow	Separated	Divorced	Total
Male	25 (26,68%)	8 (5,1%)	26 (27,76%)	1 (1,34%)	1 (0,8%)	1 (0,8%)	58 (62,53%)
Female	10 (10,78%)	4 (4,04%)	15 (16,17%)	5 (5,1%)	1 (0,53%)	1 (0,8%)	35 (37,46%)
Total	35 (37,46%)	12 (9,14%)	31 (43,93%)	6 (6,44%)	2 (1,33%)	2 (1,6%)	93 (100%)

Sample Size N= 93

From the total of 93 respondents, 43,93% were never married, while 37,46% were married. These research findings closely correspond with the 2016 Stats South Africa Community Survey in which 40% of the 10725 respondents were married, while 47% of the respondents were never married. A total of 62,53% of the respondents were male while 37,46% of the respondents were female. These findings are in line with the Stats South Africa 2016 Community Survey in which the female population in Smash Block Informal settlement was established to be approximately 35%, while the male population was confirmed to be 65%. Henceforth the survey results can be argued to be representative of the Smash Block Informal Settlement Area. 96% of the respondents were Black while 2 percent apiece were White and Colored's respectively. In addition, the researcher found out that out of 93 respondents, 65 (i.e. 69,89%) of the interviewees were South African citizens[3] whereas 28 (30,1%) were non-South African citizens. The South African respondents comprised the largest number of people, which was expected given that the mining settlement is in South Africa. Figure 4-1 shows places of origin of the interviewees.

[3] Defined according to the South African Citizenship Act, 1995 (Act 88 of 1995) as amended by the South African Citizenship Amendment Act, 2010 (Act No. 17 of 2010)

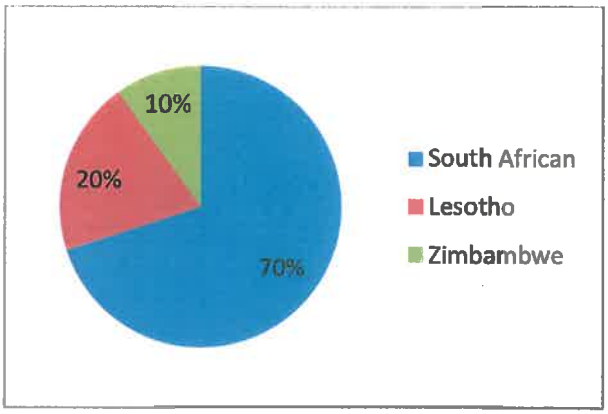


Figure 4-1: shows places of origin of the interviewees

Sample Size N=93

Table 4-2 shows the age group of the interviewees. The interviewees' age was as follows, 12 (12,9%) fell within the age group of 25 to 29 years, 11 (11,82%) fells within the age group of 30 to 34, 11 (11,82%) fell within the age group of 35-39, 12 (12,9%) fell within the age group of 40-44 years while 7 (7,52%) fell in the age group of 45-49 years.

Table 4-2: Age of the interviewee

Age distribution of respondents	No of respondents	Percentages
Less than 20	25	26,88%
20 – 24 years	13	13,97%
25 – 29 years	12	12,9%
30 -34 years	11	11,82%
35 - 39 years	11	11,82%
40 -44 years	12	12,9%
45 – 49 years	7	7,52%
50-54 years	5	5,37%
55-59 years	4	4,3%
60-64 years	2	2,15%
65-69 years	2	2,15%
Total	93	100%

Sample Size N=93

Table 4-2 is typical of a developing country pyramid in which the youthful group dominates the structure. The need to exploit the youthful population dividend in a

manner that overcomes women vulnerabilities in mining informal settlements is therefore important.

4.3.1 Household composition of the interviewed women

Household composition is composed of all the people living with the interviewees. The data collected from the 93 interviewed respondents shows that respondents live with people of different age groups, who are either their children, spouses or relatives. While a significant number of the respondents from the sample involve women living with their husband and thereby depending financially on their husbands since they are unemployed, over 28 (approximately 30,1%) of the surveyed responses were made up of single women living with their children and relatives. A further 19,9% was composed of single women living with their children. This makes up a total of approximately 40% single woman who live with children and relatives. This has resonated with unemployment, poverty and inequality which are subtle manifestations of vulnerabilities for women in the Smash Block Informal Settlement. Figure 4-2 shows the household composition of the 93 interviewed respondents.

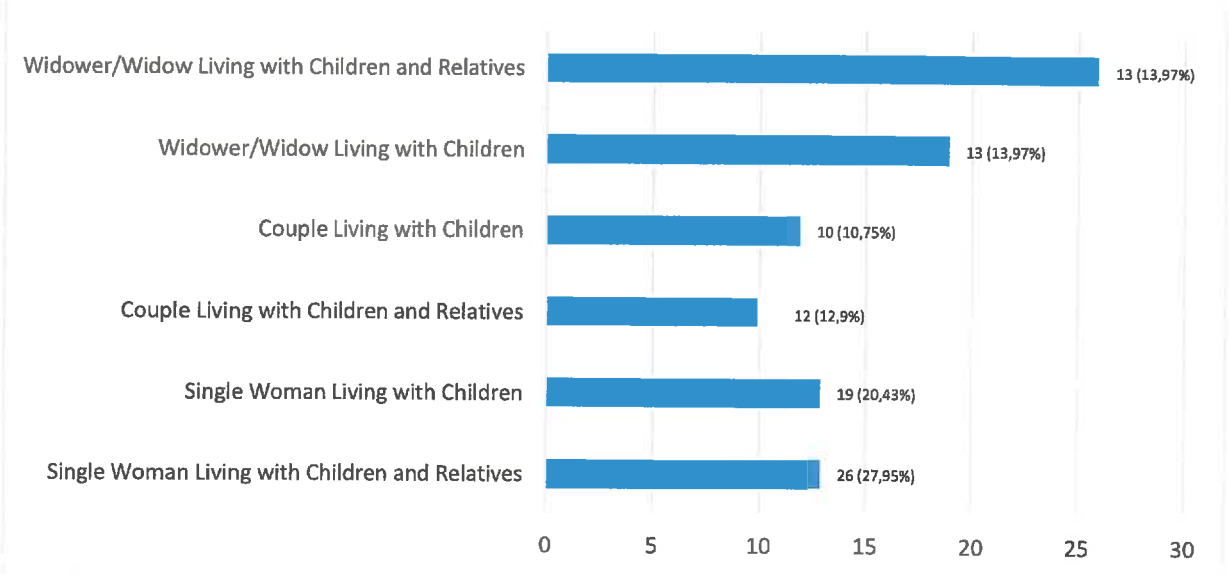


Figure 4-2: Household composition

Sample Size N= 93

Figure 4.3 shows the percentage of household members of the 93 interviewed households in Smash Block Informal Settlement. Most households have about 9-12 members living with them, who are either their children, relatives or husband. The more the number of household members, the more vulnerable to poverty and food insecurity the household becomes. It can also be argued that unemployment of the interviewees leads them to engage in sexual activities which results in high birth rates as well as sexually transmitted diseases and placing family under the risk of HIV/AIDS (Siebe, P., 2017). It can be seen from Figure 4.3 that most households are composed of between 9-12 members. This is actually twice or treble the average family size in South Africa which is 3,3 (Stats South Africa, 2016).



Figure 4-3: Average Number of household members in study area

Sample Size N= 93

4.3.2 Educational level of respondents

Out of 93 interviewed respondents, 19 (20,4%) mentioned that they have no schooling at all while the other 8 (8,6%) indicated that they had attended school but did not complete primary (Figure 4-4). 28 (30,2%) of the respondents stated that they had completed primary education. Those who completed their secondary education where 19 (20,4%) while the 19 (20,4%) did not complete their secondary education.

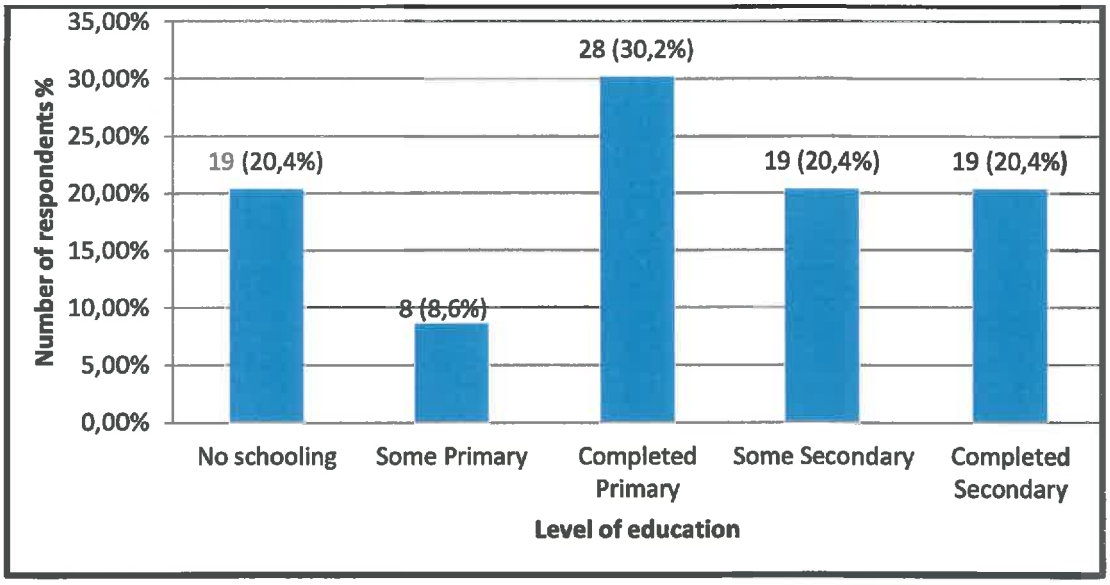


Figure 4-4: Education level of respondents in Smash Block Informal Settlement

Sample Size N= 93

From Figure 4-4 we can deduce that the Smash Block Informal Settlement is composed of unskilled and semi-skilled labour. In seeking to create employment opportunities projects and programmes that are labour intensive should be recommended. Such labour-based employment public works can be used in developing basic skills in building, construction, carpentry etc which skills may become handy in the upgrading of the informal settlement in the future (Chant, and Pedwell, 2008).

4.3.3 Employment status

The information collected from the interviewee shows that 55 (59,13%) of the interviewees are unemployed, 19 (20,4%) are self-employed whilst only 19 (20,4%) are formally employed (Figure 4-5). Those who were unemployed depend on their working spouses. The working spouses were usually husbands who were employed either as construction workers or miners. Women who were self-employed operated small informal businesses. They were selling vegetables, Tupperware and Avon cosmetics which generated supplementary household income although the women generally claimed that this extra income was not enough to sustain them and their households.

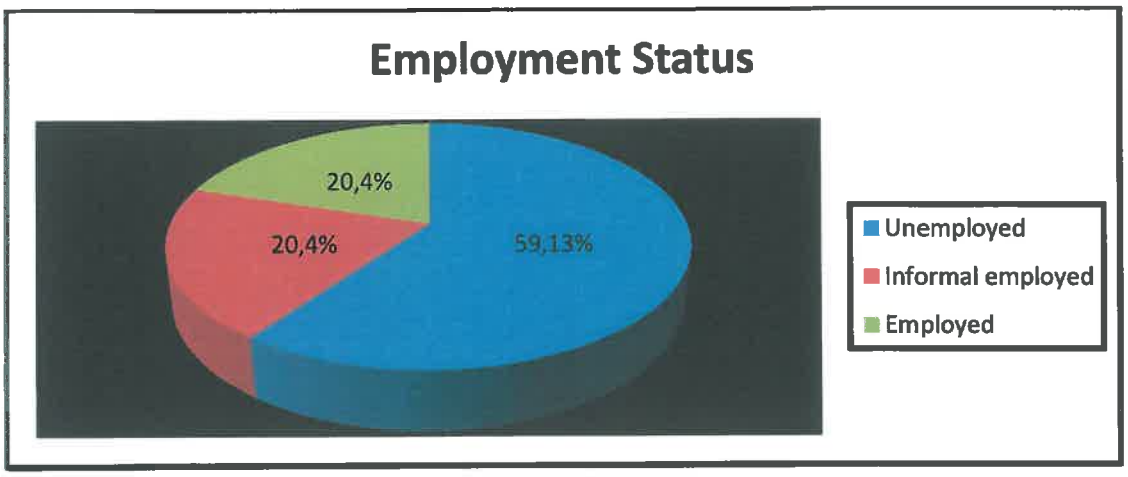


Figure 4-5: Employment status of respondent

Sample Size N= 93

Information collected on household monthly income shows that 28 (30,2%) of the respondents earned less than R1000 per month, while 19 (20,4%) of the respondents earn between R1001-R2000, 38 (40,86%) of them earn between R2001-R3000, and 8 (8,6%) earned above R3001.

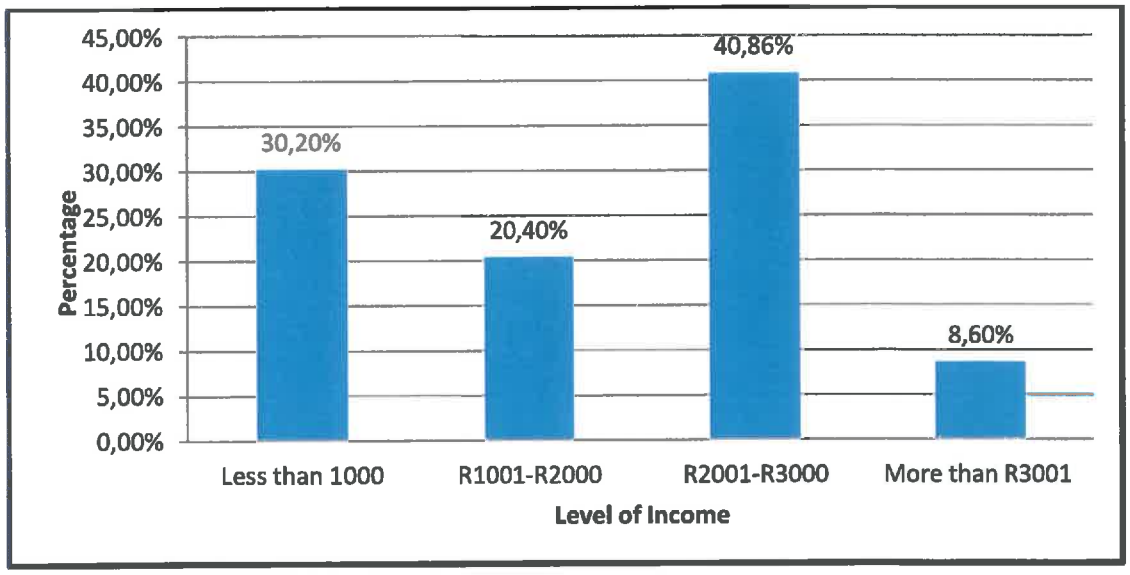


Figure 4-6: Monthly incomes of respondents

Sample Size N= 93

From Figure 4-6 we can deduce that the majority of employees in Smash Block Informal Settlement earn within the minimum wage group. These are groups that would typically fall under the government subsidised housing schemes.

4.4 Socio-economic status

4.4.1 Reasons for coming to Smash Block Informal Settlement

From the interviews carried out, 46 (49,4%) of the respondents were originally from South Africa, 19 (20,4%) from Lesotho and 9 (9,67%) from Zimbabwe. Amongst other reasons for the 19 (20,4%) of the respondents from Lesotho to come to Smash Block Informal Settlement was the need for wives to join their husbands, who were working in mine. Henceforth, their reason for migration was marriage linked primarily rather than employment induced opportunities, which was a secondary factor. However, despite being close to their husbands, all the respondents from Lesotho failed to attain employment in the mine as mining companies around Smash Block were not prioritising the employment of foreign women. The 46 (49,4%) men from South Africa said that for one to get employed, the authorities from the mining companies required both men and women to pay a fee of R15 000 to secure a job. This amount was usually difficult to raise moreso for women who were unemployed. The following verbatim extracts from in-depth interviewees with women making use of the snow-balling technique provide a clear story of the barriers and constraints women faced in seeking to gain employment in the mining companies, namely:

"I came to South Africa so that I can also get a job from the mine, but I couldn't get employed since I am foreign woman" said an interviewee from Lesotho.

"I am originally from the Eastern Cape, I am failing to get a job, as they are selling jobs for R15 000 and I don't have such money since I am unemployed" said an interviewee from South Africa.

In trying to make a living, 39,78% (37) respondents indicated that that they had tried to do engaged in self-employment. The majority of women had explored small to medium business like selling Tupperware, Avon cosmetics, clothes and Beauty salons

but some of those businesses failed to thrive because people always purchased their stock on credit and hardly paid them when it was time to pay. Figure 4-7 shows the images below show some of informal business activities taking place within Smash Block Informal Settlement.



Figure 4-7: Business activities in Smash Block Informal Settlement

Source: on site pictures taken by the researcher (August 2017)

4.4.2 Access to socio-economic opportunities

From the interviews, all the interviewees indicated that they do not have access to many opportunities, as there are no social clubs, inadequate infrastructure and social structures such as the Adult Basic Education and Training (ABET) and libraries. In addition, most of the unemployed including women had no access to credit facilities. Some of the women suggested that a Woman's Bank be created to assist in empowering women to join mainstream industry and business. However, the feasibility, advisability, viability and necessity of creating a women's bank require further investigation. This is advanced within a context in which an alternative view would be to explore engagement with existing banks for special arrangements in support of women's needs. Another alternative is to up-scale the stokvel system which can also realise the same benefits for the interested women group's. Some unemployed men and women also highlighted the urgent need to establish a Human

Settlements and Infrastructure Bank that could provide cheap and affordable finance for informal settlements owners in mining towns to use in upgrading and developing the informal settlements (Siebe, 2017). This suggestion has been on the cards with the Department of Human Settlements and lately has received a green light. However, while the overall framework and concept is laudable, there is need to establish mechanism at the local level to ensure that women at the community will benefit as the danger of outside grab and benefit looms if not well thought through. These suggestions have resonates with the need to create public-private partnership in which community participation and involvement in tenure upgrading and informal settlement planning and formalisation through re-blocking of such settlements will be critical. At the same time the option of implementing a land value capture approach in upgrading the informal settlements is a viable option that should be keenly pursued.

4.4.3 Challenges within the Smash Block informal settlements

Information from the interview indicates that 79,56% (i.e. 74) of the interviewees said that the social factors affecting them include violent fights within the community that emanate from beer halls. Nevertheless, there was no information on domestic violence that was collected due to the scope of the study and ethical consideration. The remaining 20,43% (i.e. 19) of the respondents indicated that a pressing social challenge included inadequate social facilities such as social clubs, libraries and health centres whereby they can entertain themselves and learn from each other.

On physical challenges all of the respondents indicated that the roads were not in good condition. This was argued to be responsible for perpetrating negative impacts and an additional layer of risk comprising emergency services. As an example an emergency vehicles was argued would find it very difficult to reach some places of the Smash block Informal Settlement as the roads are in bad condition and not fully formed or construction engineered. 79,56% (i.e. 74) of the respondents believed housing was a big physical challenge given that only 20,43% (i.e. 19) of the Smash Block Informal Settlements were estimated to be living in brick house. The rest of the community lived in temporary plastic, wooden, zinc and card-box shacks. These were a fire hazard but also a heat and cold hazard with implications for health ailments.

The respondents further indicated that lack of employment opportunities for women has led to low standard of living for women living in Smash Block Informal Settlement. Consequently, the majority of interviewed households had women who depended on their spouses and informal small businesses for income. Even though men are usually formally employed by mining companies, the income from mining jobs was not enough to support families throughout the whole month. In any case, the women had to engage in informal activities such as selling food, sweets and second-hand clothes to supplement household family income. Approximately 79,56% (i.e. 74) of Smash Block Informal Residents were living in shacks instead of brick houses as they could not afford to build proper houses. The respondents were of the view that they were not being afforded a chance to work nor perform any other economic task within the confines of the mine. The respondents also alluded to the notion that male counterparts were usually the main beneficiaries of many of the mining projects.

4.4.4 Access to basic services

Out of 93 household respondents, 69,89% (i.e. 65) indicated that the living conditions they are exposed to in Smash Block Informal Settlements was not good. This was because they were struggling to meet their basic needs. In addition to this 30,1% (i.e. 28) of the interviewees indicated that the living conditions in Smash Block Informal Settlements were much better than their places of origin. This notion might have been in that state as the respondents might have moved from poorer communities compared to the Smash Block Informal Settlements.

The respondents or interviewees were asked their opinions regarding the level of access to different services. The responses were categorised into economic, social and infrastructural services. The respondents were tasked to tick whether they were not receiving services, or partially received or received services from either the municipality or directly from the mines.

Table 4-3: Respondents views on the access to basic services

	NO	Partially	YES
Economic services			
i. Petrol service station	✓		
ii. Shopping Complex		✓	
iii. Industry			✓
Social services			
i. Schools	✓		
ii. Employment	✓		
iii. Hospital/Clinic		✓	
iv. Police station		✓	
v. Other			✓
Infrastructural services			
i. Roads	✓		
ii. Water and Sanitation		✓	
iii. Electricity	✓		
iii. Other			✓

Source: Authors field data (December: 217).

A respondent who was interviewed from Lesotho expressed concerns on the state of life in Smash Block Informal Settlement. The respondent revealed that-:

"Life in Smash Block Informal Settlement is not easy at all yet much better than Lesotho where I come from, because at least here my husband is working and don't have to walk long distances to fetch water and wood" says one of the respondents.

"We had better basic services such as water and electricity back home in Eastern Cape; I only came to Smash Block to be with my husband and find a job" says one of the respondents.

When respondents were asked the type of services, they had access to, all women responded that besides water that is supplied by water tanks, Apollo lights, streets toilets and a solar phone charging system, they had no service at all. All the other services such as the water from the tanks, the Apollo lights as well as the street toilets

had been provided by the mine. They further elaborated that they did not receive water from the tanks on daily basis which compromised their hygiene. This was noted as a concern for girls and women especially during their menstrual cycle. One of the participants indicated that:

"Sometimes the truck that supplies water does not come for a period of over a week and we are forced to buy water from people with donkey carts and they charge R4-00 per 20 litres, and we are forced to buy, unemployed as we are" says one of the interviewees.

While the Apollo lights, street toilets and Solar Phone charging system were a noble initiative, these were vandalised, and some were no longer working. Consequently, all the respondents and women indicated that there was no electricity within their households. In any event, they are forced to depend on paraffin stoves for cooking and use candles and paraffin for lighting at night. The use of these alternative sources besides being costly also came with a fire hazard risk as fires have constantly razed down the women and polythene covered structures from time to time. Some of the participants were recorded saying:

"Since there are young kids within the house, we fear {and have seen it happening before} that paraffin stoves and lights can burn our shacks down" said one of the interviewees.

Figure 4- 8 shows pictures showing eroded road and a woman going to collect water



Figure 4-8: Pictures showing eroded road and a woman going to collect water

Source: on site pictures taken by the researcher (August 2017)

From Figure 4-8, we can see the state of the access roads that required proper gravelling as the road was never tarred nor gravelled. Such inadequately formed road infrastructure inhibited free movement of public transport and emergency vehicles within the settlement as alluded before. Access to water as evidenced by the women pushing a wheel barrow to fetch water was a challenge for the community such that women spend more time fetching water instead of focusing on more productive work activities and seeking employment.

4.4.5 Services respondents considered as priority

The 371 respondents were asked questions about the type of services they think can play a significant role in improving women's lives in Smash Block Informal Settlement. They all emphasised that women should be provided preferential access to jobs, water, electricity and better streets. One of the women emphasized that if they have water within their yards, they can even have vegetable gardens on their backyards so that they could be able to provide food for their families even in the absence of jobs. The respondents also revealed that since the clinic they used was in a bad state and

always had inadequate medicine it was important for the upgrade of the clinic so that it could be more functional in order to assist the community.

4.4.6 Implications of having a limited access to basic services

The respondents were further asked to provide their own opinion with respect to the negative impacts that women were perceived to be vulnerable due to lack of access to clean water for household use, better houses, electricity and better street/access roads. 80% of the respondents revealed that not having tap water within their yards made it hard for women to start their own vegetable gardens. This meant that household food requirements and nutritional needs were compromised as women had to wait for the husband income and stretch it to cover all family needs. The vulnerability of women and families owing to limited means was noted to be acute when a family had a pregnant woman, a young child or the sick who could require special diets to fully recover. Water scarcity was linked to a failure and inconsistent mine truck water supplies. When these water supplies were erratic, unemployed households usually find it difficult to have money to buy water sold by donkey water carts sellers. The concern was noted as serious given that water is essential for everyday use. This is because water is used for cooking, cleaning, drinking and washing clothes. Lack of water was viewed as presenting negative implications on a community's health as it 's absence would sometimes cause waterborne diseases such as Typhoid and Cholera which usually affects young children. Respondents emphasised the seriousness of water scarcity in the study area by highlighting that it is not uncommon for families to spend a day or two without cooking or bathing due to lack of water.

Since there was no electricity, all of the women interviewed as key informants as part of the snow-ball technique indicated that they depended on paraffin stoves. This dependency has a high vulnerability implication for women given that most of the women were unemployed. This situation resulted in the women spending most of their earnings on buying paraffin. They further explained that they cannot even depend on wood as their source of energy as most of the forests have been cleared by the mines. They indicated that better streets will make it easy for emergency vehicles to reach the entire community when there is an emergency.

4.5 Linkages between the community and the mine

The key informants and women groups chairpersons were asked the nature of relationship they had with the mine. They all indicated that there is no tangible linkage that existed between the community and the mine despite later on highlighting a number of community projects that were bankrolled by the mines. However, the respondents listed the developments that the mine brought in Smash Block Informal Settlement, which included the Solar phone charging system along the streets lights about 5 years ago as well as the water tanks that sometimes deliver water to the community. The argument was that the mines were planning without the community and hence even good projects initiated for the community by the mine may not receive the appreciation that was expected. The need to change and improve the collaborative planning and space negotiation models between the mines and the community beckons (Siebe, 2017). The mine had also built a clinic however the clinic had degraded over time such that it was almost as if it never existed. This revealed that although in the past the mine used to invest in the community, they had stopped to do so fully, and they did not put a maintenance plan in place to ensure that the infrastructure continues functioning in the long run.

Turning to further probing the opinion of women on whether they had benefited from the presence of the mine which was located closer by, the returned answers were negative. Save for six woman, the rest of the respondents indicated that they did not receive tangible benefits from the mine as they were still unemployed. While some acknowledged to having secured employed from the mine, they still however argued that the mine could have explored innovative ways of creating employment opportunities for women in the sector. Thinking ahead, the women indicated that they also wanted to be involved in community projects brought by mines mainly construction projects so that they could be equipped with skills that they could use to generate income even after the mining project is completed or closed or depleted.

4.5.1 Community engagement by the mine

The respondents were asked whether they were consulted on any development by the mine. All the respondents agreed that they were informed about the developments, and that they were promised jobs on those projects. However, a small segment of the unemployed people was absorbed into the mining workforce. The respondents also revealed that the mine came to engage them on future and prospective projects which projects had not materialised to date. It was also argued that the community members were sceptical of the mining consultations as history paints a picture in which the mining projects have remained elitist as they benefit the few at the expense of the majority.

4.6 Emerging themes and discussion

From the data collected, 30,1% (28) of the households residing in Smash Block Informal Settlement are non- South Africans and 69,89% (65) are South Africans. Most of the participants only had basic primary education suggesting the need to develop unskilled and semi-skilled jobs in the short to medium term. However, in the medium to long term, there is need to explore a skills and capacity building programme to impart and transfer life skills for opening further pathways in the economy beyond the mining sector. Given that most of the residents in the study area are unemployed, there is need to explore developing other business and enterprises so that there is diversification and reliance beyond the mining sector. It was also established that the majority of bread-winners earn not more than R3000-00 per month. This minimum wage salary means that the study area respondents are within the low-income group. This has implications regarding housing finance option for upgrading the informal settlement. The need to explore subsidised housing financing models in the study area is therefore vital. At the same time, business and School Forums in the study area are existing structures that can be reconfigured and strengthened to bring about women vulnerability coping and adaptation measures for inclusive spatial transformation in mining communities. In order to reduce vulnerabilities for minorities, the youth, aged and disabled in mining communities, there is need to unpack gender relations and decision-making powers in the mining communities. That way poverty, unemployment and inequality are tackled as part of the wider vulnerabilities and risks attached to women in informal mining settlements. Addressing these matters will lead to a reversal

of the poor living standards and conditions typical in Smash Block informal settlement. Only 20,43% (i.e. 19) of the respondents (including women beneficiaries) live in brick houses and the rest live in shacks, underlining the need for generating a comprehensive master plan to address the challenges of inadequate development in Smash Block Informal settlement. International migrants who have migrated to the study area to join their spouses have meet with limited success in their quest to secure employment and complement husband's income for family requirements. This has left migrants vulnerable to access to houses, jobs and services. At the same time, the community members were concerned that participation and coordination structures between the mining houses and communities were superficial and not productive enough (Ololade, and Annegarn, 2013). There is need to explore alternative inclusive participation and collaborative models of engagement to foster genuine mining informal settlement dialogues that will advance the need to address mining and women vulnerability issues in Smash Block Informal settlement.

4.7 Conclusion

In conclusion, all the participants indicated that life in Smash Block Informal Settlement has exposed them to harsh living conditions and various health and related risks. Most of them came to live in Smash Block Informal Settlement with the objective of finding employment. Those whose husbands work in the mine, also wanted to be closer to their husbands, unfortunately they ended up achieving only one objective of being close to their spouse. All the participants further on indicated that lack of basic services such as water, housing, better streets and electricity put them in vulnerable positions as they are expected to fetch water from the street tanks, take care of the household chores, and engage in extra-income generating activities to supplement their husbands income. Generally, respondents were of the opinion that they were not really benefiting from the mining companies as compared to males due to no/limited access to job opportunities for women, and non-South African women are not prioritised for employment by the local mining companies.

5. CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

Chapter five presents the conclusions drawn from the findings of the study and gives its recommendations. At the beginning of this research the objective of this study was to examine the vulnerability of women living in mining communities in Thabazimbi Local Municipality, through making use of a case study of Smash Block Informal Settlement. (Chapter 1, S.1.3 & S. 1.4). The study therefore sought to:

1. Identify the social, economic, environmental, infrastructural and governmental factors influence the vulnerability adaptive measures of women in Smash Block Informal Settlement?

At the time of commencing this research report, the initial understanding was that the nature of the research would be largely exploratory. However, consequent to the application of the mixed research methodology, the study has been able to firm up observations, corroborate findings as well as make suggestions regarding how gender and mining can be reconciled for sustainable informal settlement development.

5.2 Key findings

The study examined the vulnerability of women living in mining communities through making use of a mixed method in which both qualitative and quantitative methods of data collection were used. 93 household respondents were interviewed to examine the extent and magnitude of perceived women's vulnerability, factors contributing to their vulnerability, and explore the strategies that can be adopted to improve the lives of women living in Smash Block community. The key findings that emanate from this research are the following:

- Most respondents interviewed in Smash Block Informal Settlement did not complete their secondary education. This applied to women who in most cases had only attained basic primary education. Lack of education itself is a vulnerability indicator as it is a risk factor for women vulnerability in general but more so in particular within a mining environment. This is because then the

women lack the skills necessary to enter the mining occupations. They end up either competing for the few unskilled low entry jobs that do not pay much or opt for prostitution in order to make ends meet. Both ends are different forms of the economic pendulum of vulnerability for women. To address this matter a capacity building and targeted skills development programme for women in Smash Block Informal Settlement will need to be implemented.

- From the interviewed sample, most of the women are unemployed and they either depend on their husbands as source of income or have small businesses. Most of them earn less than R3000-00 per month. This means that most of the households, including female headed households, are low income earners. This has implications regarding their capacity to raise finance to upgrade informal settlement structures. Put another way, they have limited borrowing power to raise a loan or offer collateral to banks so that they can get finance to buy or upgrade existing houses. Within this discussion, it can be argued that exploring options to develop a Woman's Bank or a Human Settlements and infrastructure Bank become exciting options that will further exploration.

- The majority of the women came to Smash Block Informal Settlement with the objective of being closer to their spouses and later on to look for employment. However, while the primary objective has been realised, the secondary objective is not easy to realise. Women have struggled to get employment, since women are not prioritised for employment at the mining companies. At the same time, the respondents indicated that mining jobs at Smash Block require the payment of *"bribes"* which can be as high as R15 000.00 failure of which someone loses the job to the next unemployed person who is willing to pay the required bribe to secure the job. Developing strong sub-chapters of the Existing business Forum could be one way of seeking to address this identified malpractice for the benefit of women employment but employment for anyone in general (Bryceson, 2015).

- All the respondents indicated that Smash Block Informal Settlement does not present adequate social opportunities for women be it in terms of social clubs, libraries nor Abet schools or some form of skills development programmes, since most of them only have basic primary education. The need to explore

how public-private partnership can develop smart partnerships in which relevant and appropriate targeted training is provided to the women in Smash Block Informal settlement is vital. Such partnerships can be through the Zion Christian Church and the Mining Business Forum. The Church could provide training space while the mining house can provide the money to pay the training providers.

- In terms of basic services that the Smash Block informal settlement residents have access to, it was indicated that with respect to women, the mine supply them with tank water on a weekly basis. However, challenges always re-emerge from time to time since the mine supply delivery system is sometimes erratic. During those times, households are forced to water from donkey carts sellers, which is in the opinion of the residents very expensive.

- Generally, one way of addressing the women vulnerability challenges in the study area that is linked to water scarcity is through developing and implementing a comprehensive master plan for Smash Block informal settlement. That master plan will result in the amelioration of water access challenges, improved and reliable access to tap water in their homes, improved and secure access to jobs and expanded employment opportunities, better streets and electricity provision. The sum effect of putting all this together is a happy, better and well satisfied community. Realising this dream may require the development further of a local spatial development framework complete with precinct area plans focusing on various nodes for economic development. The nodes that could be maximised include an market gardening (agricultural node); business entrepreneurial node; housing and flea market node as well as mining precinct and informal development node.

- All the women further on indicated that they spend a lot of time and energy fetching water. At the same time, they spend most of their earnings on buying paraffin and candles. All this increase their vulnerability to poverty.

- The mine has also provided the Smash Block Informal Settlement with Apollo lights and solar phone charging system, though both have been vandalised.

The mine has also built one primary school, and a clinic, which is still under construction and

- All the women indicated that the mine consults the community whenever a project was taking place. However, the residents felt that they had never been employed in any of the projects although they were continuously promised that they would get employment. The need to revisit the collaborative model between the mining houses and community is critical. The ultimate goals is to develop a model in which both partners emerge as "winners" rather than a situation in which one camp feels that they are "losers". A collaborative model minimise conflicts risks as well as reduces the implementation of interventions that exacerbate women vulnerability instead of empowering and centring development around gendered roles and complementarities between sexes.

In short, figure 5-1 presents a diagrammatic illustration of the factors that influenced women's vulnerability in the Smash Grab Informal Settlements. These factors broadly fall into the social, economic, environmental, infrastructure and governmental issues. Women's vulnerability is therefore manifested as social, economic, environmental, infrastructure and governance dimensions. This suggest that addressing these vulnerabilities requires interventions that cut across the social, economic, environmental, infrastructure and governmental realms of institutions and development actions and measures. At the same time solutions have to incorporate the integrated and connected nature of these vulnerabilities as these are closely related and intertwined. These factors exist at all levels, cutting across all spheres and sectors of informal settlements economies. They are factors linked to gender and cultural vulnerability induced constraints such as lack of post-secondary education for girl child, high school drop-out for female students, lack of an active informal upgrading settlement women's NGOs/Forum/Activist group, high unemployment among women *etc cetera*. Gender inclined matters such as inappropriate equipment and working environment in underground mines, fees for jobs integrity problems as well as inappropriate mining job testing systems for women mean women access to paid employment is constrained further making it difficult for women to overcome the spiral of impediments that confine them to being highly vulnerable in informal settlements.

Figure 5-1: Factors Influencing Women's Vulnerability in Smash Grab Informal Settlement



Source: Authors own conceptualisation

5.3 Recommendations

To minimize the vulnerability of women in Smash Block Informal Settlement, the following recommendations were derived from the research which will assist in curbing the challenges of women living in Smash Block community and result in improved lives of women in this community.

- *Ensuring that there is a development of a critical mass and a high level of women with basic primary education:* This is because most of the women in Smash Block Informal settlement only have basic primary education. This current set-up presents a need for more educational facilities and skills development programmes to help women further their studies. The introduction of Abet school and skills development programmes in this area will help improve the education level of women in this area. In this way they stand a better chance of getting employment.

- *Tackling unemployment:* Factors contributing to high unemployment in the study area such as mining laws that do not prioritise foreign women for employment opportunities in mining companies should be re-looked with a view to streamlining the laws in line with International Labour Laws as provided by the ILO (Ndinda, and Ndhlovu, 2016). This is because such stringent laws contribute to unemployment of women in the study area. There is therefore a need to review these laws, since their husband could work in those mining companies, they should also be allowed to work in mining companies. The fact that South African women must pay certain fee to get employed need to be considered and transparency on hiring workers must be highly considered.

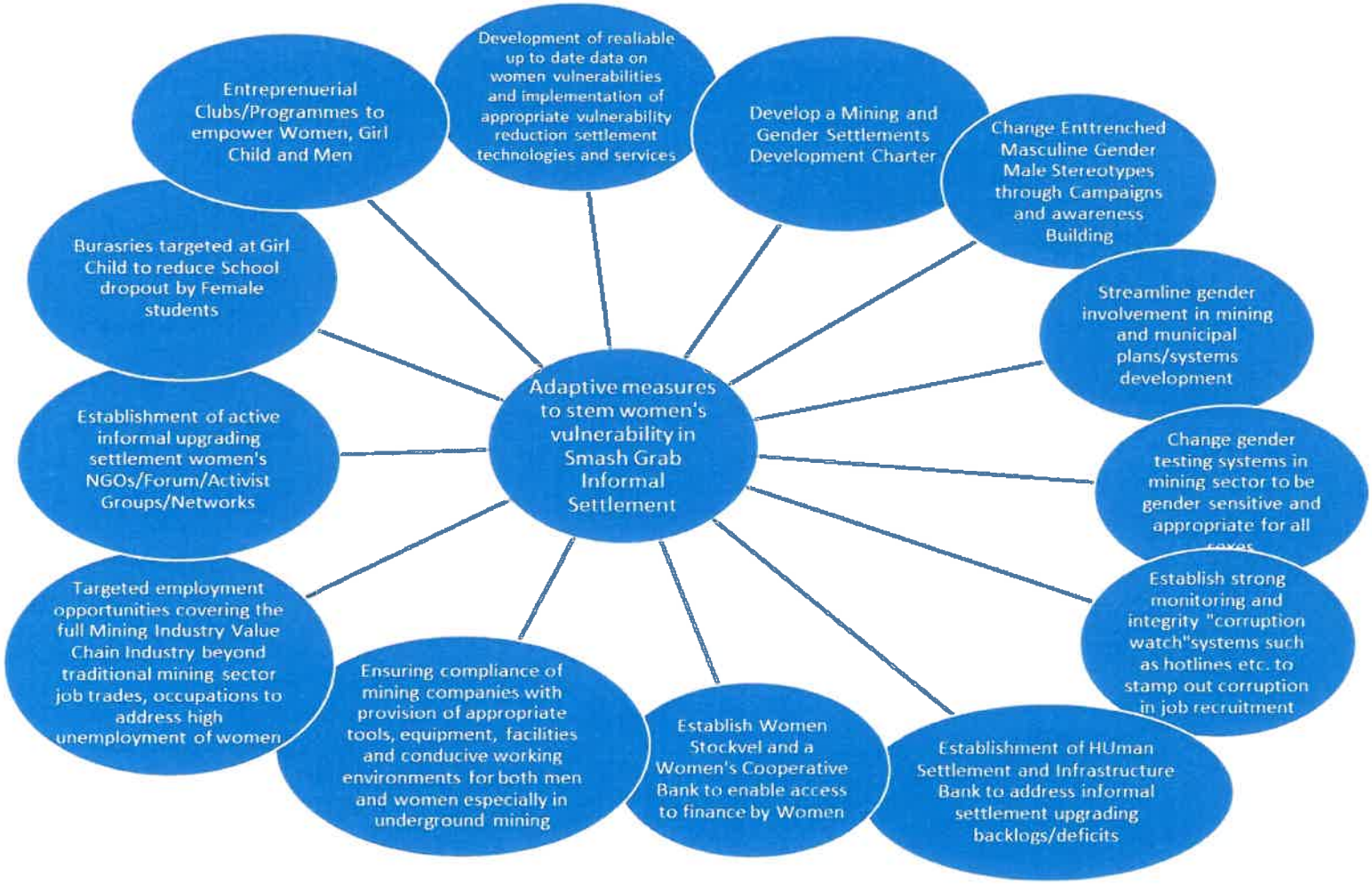
- *Access to basic services:* Mining companies together with Thabazimbi Local Municipality and different government departments must do more than just supplying tank water to this community. They should improve the socio-economic status of the people in this area through the provision of basic services such as electricity, housing and better streets. Since there are electricity lines that run over Smash Block Settlement, they should capitalize on such infrastructure and provide electricity for the people.

- *Support the livelihoods in the community:* One practical way of making ends meet for women is allowing the engagement of women in different small businesses. These emerging women businesses require support such as financial and business workshops to help them grow their businesses. The mining companies can team up with the communities and DTI to build the required support and skills base to make all the workforce in the area productive. This will not only address women vulnerabilities in the area but will proof the area of mining decline vulnerabilities as well as improve the informal settlement resistance and coping mechanism to climate change induced vulnerabilities as an example.

- *Improving the relationship between the mining companies and women is essential for turn-around informal mining settlements catalytic development (Carrington and Hogg, 2011).* Women in Smash Block settlement are often left out in the mining projects. Their involvement will help them attain skills that they may continue using to generate some income. Women should also be involved in the technical development skills program to enhance their chances of getting employment. There is need to develop and establish a Women and Mining Informal Settlement NGO/Forum that will champion the need for balanced gender mainstreaming in settlements and communities including making inputs in spatial development frameworks (SDFs), integrated development plans (IDPs), integrated transport plans (ITPs), local economic development (LEDs) so that gender matters are not ignored in local development planning and management.

In short, figure 5-2 presents a schematic illustration of the adaptive measures to stem women's vulnerability in the Smash Grab Informal Settlements. These adaptive measures should be implemented in the context of a comprehensive integrated master plan which recognises the importance of gender mainstreaming as a cross-cutting, inclusive and integrative development paradigm and concept in socially reconstructing and spatially transforming informal settlements.

Figure 5-2: Adaptative measures to stem women's vulnerability in Smash Grab Informal Settlement



Source: Authors own conceptualisation, 2018

Finally, the findings of the study revealed the vulnerabilities that women are exposed to in Smash Block Informal Settlement, in Thabazimbi Local Municipality. The recommendations to curb the vulnerability of women were made from the interviewee's responses. These recommendations are a vote of confidence for women living in Smash Block community. The main issue of concern which is linked to different vulnerabilities is the issue of lack of access to employment and socio-economic opportunities by women in the area. There is therefore a need to start from the basic before much complicated projects like low cost housing development can be tackled. Since most of the women only have basic education, the introduction of Abet schools and skills enhancing programmes will also improve the chances of women to be employed in mining companies and mining projects. To support the livelihoods in the area there is a need to support small businesses in the area. Provision of basic services will help improve the lives of women in this community as they would invest the time, they spend in fetching water in doing income generating activities such as vegetable gardening.

5.4 Recommendation for future area of research

It is recommended that a similar study be undertaken in other informal mining communities in Thabazimbi Local Municipality to see if the findings are generally applicable or not. It is also further recommended that a cost/benefit analysis be undertaken in which the provision of basic services to the residents in general and women in particular of Smash Block community is evaluated, if a phased or staging approach is adopted. A comparative study could be undertaken with a far larger sample to see whether recommendations for curbing the vulnerability of women in mining communities could be implemented in other parts of South Africa as a way of addressing the vulnerability of women living in the mining communities.

5.5 Conclusion

Women who live in mining communities largely depend on their husbands for survival, increasing both dependency and vulnerability of women. Most women in the mining communities are abused by their alcoholic husbands/partners and husbands' infidelity (D'Souza *et al.*, 2013). These tend to disempower women. In the study however, there

was no response on women being abused by alcoholic husband or members of the community. Women in Smash Block Informal Settlement further indicated that they do not feel resisted by men in this area.

The literature reveals that settlements with no access to basic services mushrooms and thrives in mining areas and such settlements often have no access to health facilities, educational facilities, and basic services such as clean water, houses, electricity and sanitation (Bryceson and Geenen, 2016). One of the factors that leads to vulnerability of women in mining communities include deteriorating and inadequate infrastructure (Nyamwanza, 2012). Manase, Nkuna and Ngorima (2009), further on mentioned that communities that lack access to basic services and infrastructure tend to be more vulnerable to poverty.

The findings of this research report revealed that in Smash Block Informal Settlement the residents do not have access to basic services and infrastructure such as water, better houses, electricity and hospitals as such the women living in this place are vulnerable to poverty and poor living condition. The only services they access to, is street water supplied in tanks by the mine and at the moment there's only a mobile clinic and a clinic under construction. Studies show that in communities where there is lack of basic services, women are likely to drop out from school as they help in doing household chores and fetching water.

The findings have revealed that most women interviewed in Smash Block Informal Settlement are unemployed and either depend on their husbands, social grant money or small informal businesses as a source of income. Doret (2016) explained that in mining communities, there is high level of unemployment amongst women as mining companies prefer males over women due to the hard labour required in mines, but in the case of Smash Block Informal Settlement the other contributing factor to unemployment of the majority of women interviewed is that, they have to buy jobs in mines whereas foreign women are not prioritised for employment by local mining companies. Lack of tertiary qualification also limit the interviewed women to get employed in professional jobs in mining companies. Out of the 93 respondents that

were interviewed 19 (i.e. 20,43%) were women who were formally employed in the mines. This percentage is higher than the stipulated 10% for the industry by government. It is almost double the requirement suggesting that gender mainstreaming in the mining sector and mining communities is occurring at a much faster rate than what is stipulated in policy documents which is a positive development. This momentum can be used by mining stakeholders in ensuring that gender mainstreaming in the society is fast tracked making use of the mining sector as a reference and example of a best or good practice. These assertions are important given that literature reviews have revealed that unemployment affects one in one way or another, unemployment is associated with poor health and high mortality rate. Unemployed females who are household heads are more vulnerable as they have to care of their households and this becomes a burden to them, often resulting in suffering from stress (Paul and Moser, 2011; Muchadenyika, 2015; Cirolia, et al, 2017).

The study revealed out of the interviewed women, most of them only have basic primary education and only few completed secondary education. Education is associated directly with equipping people with better problem-solving skills and educated people can take risks and act upon situations unlike uneducated people. Education improves one's chance of getting employment and improves one's socio-economic status. People with less education are more likely to be unemployed and when employed, earn low salaries or enter low-income jobs. Since most of the women interviewed in Smash Block Informal Settlement are not educated, their chances of getting employment are very slim, adding to their vulnerability. Given that there is only a primary school in Smash Block and no Abet school, chances of them to attain higher education, skills and training are rather slim, if there are at all.

Most women came into this settlement for various reasons including being closer to their spouses and to look for employment however most of them did not fulfil the purpose of securing a job in the mine. The women whose husband works in the mines depend on them for income, however women with no spouses in Smash Block community are more vulnerable as compared to those with spouses as they have the

responsibility of looking after their households with no income, some have opened small informal businesses however they are not really functioning well as the women often buy things on credit and often fail to pay for them. Female headed households are vulnerable to factors such as poverty and food insecurity. Morrone (2011) pointed out that vulnerability is linked to the concepts of poverty and exclusion. In terms of employment women are not prioritised, women who are non- South Africans are not only under prioritised but are also excluded from employment opportunities by local mining companies, while South African women are expected to pay a certain fee to maintain employment in the mine.

Since most women are unemployed, depending on their spouses for income, with no asset and security of tenure they are further exposed to vulnerability as it is difficult and almost impossible for them to access loans with security of asset or tenure. Despite the plans they might have of extending their homes and build extra rooms for rental purpose in order to generate income for themselves, it becomes impossible for them to execute such plans as they have no source of funding.

Muchadenyika (2015) indicates that vulnerability of women to environmental degradation is too high within mining communities. This is because women spend lot of time fetching wood, water and ensuring food security for their families. This is also the same case in Smash Block Informal Settlement. Women spend most of their times fetching water from the street tanks provided by the mine, they spend the little money they get from their spouses to buy paraffin, they are always in watch out of their young kids in fear that they might get burnt by paraffin stoves and candles inside the shacks.

In general, all the 93 interviewed respondents indicated that the living environment in Smash Block settlement exposes women to being vulnerable in one way or another. As this settlement will exist while the mines are still operating and even after the mines close, there is a need for a comprehensive informal housing upgrading and planning intervention to better the lives of people living in this community. There is a huge need for basic services and all other amenities which are needed for a settlement to be

sustainable (Cirolia, et al, 2017). This includes creating job opportunities and developing social amenities i.e. secondary school, training and skill development programmes. There is a need for tap water, sanitation and improving the access streets within Smash Block Settlement. Public, private partnership can play a significant role in transforming Smash Block Settlement.

Overall, in conclusion one can agree with the observation and conclusion by International Alliance on Natural Resources in Africa (IANRA), 2018: 16 as it aptly summarises the women vulnerability and the mining sector and informal settlement communities in South Africa challenges and opportunities as thus:

> *"(The Smash Block Informal Settlement thus) represents the intersection of patriarchy and capitalism, usually symbolised in the figure of the working-class, overtly masculine miner and male dominated mining (informal) settlements. Women's entry into this industry and (by extension communities) is disruptive but does not radically alter the long-established gender hierarchy that is integral to mining. Women are typically cast as the intrusive force, which should adapt to the mine environment and (mining communities), rather than the other way around. They are forced into restrictive gender roles, in a working environment that is also repressive to men. There is therefore limited opportunity for women's emancipation when they enter the workforce and (integrate in mining communities) in capitalist society".*

It is therefore important that priority and strategic projects that locate gender at the centre of the interventions been implemented at mass scale in the mining sectors and mining communities for catalytic women's vulnerabilities to be reduced in the short, medium to long term.

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7. APPENDICES

Appendix 1: interview guidelines

Interviewee no.

Greetings

My name is Lutendo Calvin Tshikovhi and I am a student studying towards Master in Built Environment (Housing) at Wits University. I am doing research on which I aim to understand the living conditions and issues necessary to unpack the vulnerability that women encounter in Smash Block informal settlements. The information that I collect will only be used for academic purposes. This questionnaire is completely anonymous and participation in this research is voluntary.

I would like to invite you to participate in this research process, however, if you are uncomfortable with any of the questions or do not wish to answer then that is acceptable and we can stop at any time you like. With your permission, the interview will be recorded using an audio recorder and hand written notes. If you are willing to participate, I will appreciate if you allow me to ask you a few questions. The interview will not take more than an hour of your time.

If you are willing to participate in this research, please sign the consent form:

How old are you? (Tick the appropriate box)

Less than 20	
20 – 24 years	
25 – 29 years	
30 -34 years	
35 - 39 years	

40 -44 years	
45 – 49 years	
50 – 54 years	
55 – 59 years	
60 – 64 years	
65 years and above	

Race (Tick the appropriate box)

Black	
Coloured	
Indian	
White	
Other (please specify)	

Location _____

1. DEMOGRAPHIC INFORMATION

1.1 Are you head of household? (Tick the appropriate)

Yes	
No	
Other (please specify)	

1.2 Who do you stay with and how old are they? (Tick the appropriate)

		Age
Alone		
Spouse		
Children		
Other (please specify)		

1.3 What is your education status?

No education	
Primary	
Matric	
Post matric	

1.4 What is your employment status?

Unemployed	
Informally employment	
Formal employment	
Other	

a. If employed, by whom?

b. What do you do at work?

c. How much do you earn per month?

Less than R1 000 per month	
R1 001- R2 000 per month	
R2 001- R3 000 per month	
R3 001-R 4 000 per month	
More than R4 000 per month	

d. If not employed what is your and your family's source of income?

2. SOCIO-ECONOMIC STATUS OF WOMEN LIVING IN SMASH BLOCK INFORMAL SETLEMENT

2.1 Where originally do you come from?

2.2 Why did you decide to come stay in Smash Block?

2.3 Did you achieve or obtained what you came here for?

Yes	
No	

If not what has or is limiting you?

2.4 Do you have access to any form of opportunities by living here?

Yes	
No	

a. If yes, what opportunities?

b. If no, what do you think is the problem standing between you and the opportunities in Smash Block community?

2.5 Do you experience any form of social, economic and physical challenges within Smash Block community?

Yes	

No	

2.6 How do you address these challenges and how would you want those challenges to be addressed by who?

3. ACCESS TO BASIC SERVICES FOR WOMEN LIVING IN SMASH BLOCK INFORMAL SETTLEMENT

3.1 How would you explain or summarise living condition of women living in Smash Block?

3.2 What services do you have access to?

3.3 Which services do you think can play a significance role for you as women in Smash Block?

3.4 If you don't have access to the services mentioned above, how is that impacting in your daily life as women?

4. Mining activities/livelihood in Smash Block informal settlement?

4.1 What is the nature of your relationship with the mine?

4.2 Does the mine do any developments in Smash Block community?

4.3 Does the mine consult the community for any development?

4.4 Do they take your complaints/queries into account as a woman?

4.5 As a woman, do you receive any benefits from the mine? (Tick the appropriate)

No	
Yes	

a. If yes, what are they?

b. If no, what benefits would you wish to receive and why?

4.6 What are the negative or positive impacts of the mines on you as a woman as well as on the community at large?

4.7 Is Smash block better than the place you come from in terms of living standard?

4.8 What would you like the mine, community, government and other institutions do in future for you as a women living in Smash Block community?

Do you have any questions or comments that you would like to add?

This is the end of my questions. Thank you once again for the opportunity to interview you.

Appendix 2: Participation information sheet

PARTICIPANT INFORMATION SHEET

Living spaces: Vulnerability of women living in mining communities: A case study of Smash Block informal settlement, Thabazimbi Local Municipality, Limpopo, South Africa.

Greetings

My name is Lutendo Tshikovhi. I am currently studying towards a Masters in Built Environment (Housing) in the School of Architecture and Planning (SOAP) at the University of Witwatersrand. I am currently investigating the research on the vulnerability of women living Smash Block informal settlement, Thabazimbi Local Municipality, Limpopo, South Africa.

I am inviting you to be part of the study through an interview. The interview will take no longer than an hour of your time. The interview will be at your place or any place suitable for you. During the course of the interview you will be asked questions regarding the livelihoods of women living in Smash Block informal settlement. The interview will be recorded using and my cellular phone and hand written notes.

You have been selected to participate in this study because you are a woman living at Smash Block informal settlement. Your participation is voluntary, you may refuse to answer any questions that make you uncomfortable, and you may withdraw at any time without penalty or loss. You will receive no payment or other incentives for your participation. Your participation will be completely anonymous and you will not be personally identified in the final report.

The results of the interview and your personal views will not be linked to you in the final report. In the event that I use direct quotations from this interview, please note that your identity will not be revealed. Any comments that you make that you deem "off the record" or similar, will not be quoted. Further, any information that you share will be kept confidential and can only be accessed by me on a password protected computer. There are also no foreseeable risks associated with your participation.

The research undertaken is solely for academic purposes and once completed will be available electronically and can be accessed publicly.

If you have any questions, concerns, or comments or if you would like a copy of the final report, please feel free to contact me at 1481749@students.wits.ac.za or my supervisor at brian.boshoff@wits.ac.za.

Regards

_____.

Lutendo Tshikovhi

Masters in Built Environment (Housing)

Appendix 3: Ethics clearance certificate

[redacted]

SCHOOL OF ARCHITECTURE AND PLANNING
HUMAN RESERCH ETHICS COMMITTEE

SCHOOL OF ARCHITECTURE & PLANNING

CLEARANCE CERTIFICATE
PROTOCOL NUMBER: SOAP112/09/2017

PROJECT TITLE:	Vulnerability of Women Living in Mining Communities: A case study of Smash Block Informal Settlements, Thabazimbi Local Municipality, Limpopo, South Africa.
INVESTIGATOR/S:	Lutendo Tshikovhi (Student no#1481749)
SCHOOL:	Architecture and Planning
DEGREE PROGRAMME:	Master of the Built Environment (MBE)
DATE CONSIDERED:	23 October 2017
EXPIRY DATE:	23 October 2018
DECISION OF THE COMMITTEE:	APPROVED

CHAIRPERSON _____
(Professor Daniel Irurah)

DATE: 25 - 10 - 2017

cc: Supervisor/s: Brian Boshoff

DECLARATION OF INVESTIGATORS
I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee.

Signature **Date**

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VULNERABILITY OF WOMEN LIVING IN MINING COMMUNITIES: A CASE STUDY OF SMASH BLOCK INFORMAL SETTLEMENT, THABAZIMBI LOCAL MUNICIPALITY, LIMPOPO, SOUTH AFRICA.

Tshikovhi Lutendo Calvin

1481749

A research report submitted to the Faculty of Engineering and the Built Environment, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Built Environment (Housing).

Johannesburg, 2019